

ENERGY AS A WEAPON: IMPLICATIONS FOR U.S. POLICY

JOINT HEARING
BEFORE THE
SUBCOMMITTEE ON ENERGY
AND RESOURCES
AND THE
SUBCOMMITTEE ON NATIONAL SECURITY,
EMERGING THREATS, AND INTERNATIONAL
RELATIONS
OF THE
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HOUSE OF REPRESENTATIVES
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ENERGY AS A WEAPON: IMPLICATIONS FOR U.S. POLICY

TUESDAY, MAY 16, 2006

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON ENERGY
AND RESOURCES, JOINT WITH THE SUBCOMMITTEE ON
NATIONAL SECURITY, EMERGING THREATS, AND INTER-
NATIONAL RELATIONS, COMMITTEE ON GOVERNMENT
REFORM,

Washington, DC.

The subcommittees met, pursuant to notice, at 2:07 p.m., in room 2154, Rayburn House Office Building, Hon. Darrell Issa [chairman of the Subcommittee on Energy and Resources] presiding.

Present from the Subcommittee on Energy and Resources: Representative Issa.

Present from the Subcommittee on National Security, Emerging Threats, and International Relations: Representatives Shays, Van Hollen, Ruppersberger, and Lynch.

Also present: Representative Cummings.

Staff present: R. Nicholas Palarino, Ph.D., staff director; Robert A. Briggs, analyst; Larry Brady, staff director; Lori Gavaghan, legislative clerk; Tom Alexander, counsel; Dave Solan, Ph.D., and Ray Robbins, professional staff members; Andrew Su, minority professional staff member; and Cecelia Morton, minority office manager.

Mr. ISSA. Thank you all for being here. Noting that a quorum is present of this joint hearing of the Government Reform Subcommittee on Energy and Resources and Subcommittee on National Security, Emerging Threats, and International Relations, we will come to order.

Gasoline is over \$3 a gallon, and it is a very visible sign of our energy dependence. But far less visible and perhaps far more serious threat to our economic well-being and the pursuit of our vital national interest is the increasing constraint producing countries place on the full range of our foreign and domestic policy options.

As we see these stress points on our ability to make independent domestic and foreign decisions, this committee has become increasingly concerned that oil is not only a weapon but is a viable weapon of those who have an agenda not in sync with the United States and perhaps not with the rest of the free world. Some producers have proven entirely too willing to use energy as a weapon, or as blackmail, in the words of Vice President Cheney. Others cannot resist the populist temptation to nationalize energy resources despite history's lessons that it undermines production over the long term and acts as a destabilizing force once prices drop.

At this time, other producers are undermined by emerging groups seeking to cutoff energy supplies from world markets. Consuming countries are belatedly reassessing their options in a shifting world of geopolitics, and more cooperation must be and should be absolutely necessary. However, some consumers, such as China, have naively and seemingly stepped away from the open market and sought out long-term supplies through state-to-state agreements.

We must address important questions in today's hearing. Have we allowed ourselves and our allies to become so boxed in by Iran, Venezuela, Russia, Nigeria, and Bolivia, that we cannot effectively counter the use of "energy as a weapon?" We know that the current energy crisis is demand-driven and not as a result of any abrupt shock in the oil supply. But what if we did have an abrupt shock to the oil supply when we have, in fact, no spare production? What would a supply shock do to our economy and to those of our trading partners? How are the Departments of State and Energy, represented here today, working to ensure the supply of energy? And is the Federal Government doing enough to meet the challenges not just for today, but for tomorrow?

It is my hope that today's hearing will not only more clearly identify the ramifications of our oil dependency on the economic and national security interest, but also begin to identify—and this is most important—how to deal with those ramifications. Last week, Chairman Davis and I released a majority staff report entitled, "Securing America's Energy Future." The report contains aggressive recommendations for lessening our dependence on foreign energy supplies.

Today we will hear from some of the best experts in the world on these issues. On the first panel, we are privileged to have here today Assistant Secretary of Energy and Policy for International Affairs Karen Harbert and Deputy Assistant Secretary of State Paul Simons.

I will introduce the second panel later, and would ask for my ranking member to make his opening remarks.

[The prepared statement of Hon. Darrell E. Issa follows:]

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OPENING STATEMENT OF DARRELL ISSA, CHAIRMAN

Joint Oversight Hearing:
“Energy as a Weapon: Implications for U.S. Policy”
May 16, 2006, 2:00 p.m.
Room 2154 Rayburn House Office Building

OPENING STATEMENT OF CHAIRMAN DARRELL ISSA

Gasoline at over \$3 per gallon is a very visible sign of our energy dependence. But far less visible and perhaps a far more serious threat to our economic well-being and the pursuit of our vital national interest is the increasing constraint producing countries place on the full range of our foreign and domestic policy options.

Some producers have proven entirely too willing to use “energy as weapon,” or as “blackmail” in the words of Vice President Cheney. Others cannot resist the populist temptation to nationalize energy resources, despite history’s lesson that it undermines production over the long-term and acts as a destabilizing force once prices drop.

At the same time, other producers are undermined by insurgent groups seeking to cut off energy supplies from world markets. Consuming countries have belatedly reassessed their options in a shifting world of geopolitics—and more cooperation has become an absolute necessity. However, some consumers, such as China, have seemingly stepped away from the markets and sought out long-term supplies through state-to-state “mercantilist” agreements.

We must address some very important questions at today’s hearing.

- Have we allowed ourselves and our allies to become so “boxed in” by Iran, Venezuela, Russia, Nigeria, and Bolivia, that we cannot effectively counter the use of “energy as a weapon?”

- We know that the current energy crisis is demand-driven and not the result of an abrupt supply shock. But how susceptible are we to a supply shock in a global energy market with no spare production?
- What would a supply shock do to our economy and to those of our trading partners?
- How are the Departments of State and Energy working to ensure the supply of energy, and is the federal government doing enough to meet the challenges of today and tomorrow?

It is my hope that today's hearing will not only more clearly identify the ramifications of our energy dependency on our economic and national security interests, but also begin to identify how to deal with those ramifications. Last week Chairman Davis and I released a majority staff report entitled "Securing America's Energy Future". The report contains aggressive recommendations for lessening our dependence on foreign energy supplies.

Today we will hear from some of the best experts in the world on these issues. On the first panel, we are privileged to have here today:

- Assistant Secretary of Energy for Policy and International Affairs, Karen Harbert; and
- Deputy Assistant Secretary of State Paul Simons.

On the second panel, we have an extremely impressive group of witnesses.

- Dr. Daniel Yergin, Chairman, Cambridge Energy Research Associates;
- Ambassador Keith C. Smith, Senior Associate, Center for Strategic and International Studies; and
- Mr. David Goldwyn, Goldwyn International Strategies

I look forward to hearing from all of you today.

TOM DAVIS, VIRGINIA
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SUBCOMMITTEE ON ENERGY AND RESOURCES

DARRELL ISSA, CHAIRMAN

Will Hold a Joint Oversight Hearing:
“Energy as a Weapon: Implications for U.S. Policy”
May 16, 2006, 2:00 p.m.
Room 2154 Rayburn House Office Building

WITNESS

PANEL 1:

The Honorable Karen Harbert,
Assistant Secretary for Policy and International Affairs,
United States Department of Energy

The Honorable Paul Simons,
Deputy Assistant Secretary for Energy, Sanctions, and Commodity Policy,
United States Department of State

PANEL 2:

Dr. Daniel Yergin,
Chairman,
Cambridge Energy Research Associates

Ambassador Keith C. Smith,
Senior Associate,
Center for Strategic and International Studies

Mr. David Goldwyn,
Goldwyn International Strategies

Mr. LYNCH. Thank you, Mr. Chairman. I want to thank Chairman Shays and yourself, Chairman Issa, for holding this hearing. I can think of very few issues that are so prominent, so profound, and so immediate in the world today.

I would also like to thank both our Secretaries and the collective witnesses on the second panel for helping our committee with its work.

Throughout the past year we have witnessed a dramatic 38 percent increase in the price of crude oil and, concurrently, a sharp rise in the average cost of gasoline to American families. In recent weeks, crude oil prices have risen to over \$70 a barrel and, according to the Energy Information Administration, this week's average national price for regular grade gasoline is nearly \$3 per gallon, a nearly 80 percent increase from a year ago. On the East and West Coast, the average price per gallon is actually over \$3.

Among the chief factors that have facilitated recent rises in oil prices has been increased worldwide consumption and demand as countries such as China and India have experienced significant economic growth. However, it is the United States that remains the world's leading oil consumer, consuming over 20 million barrels of the roughly 80 million barrels produced worldwide each day, while producing only about 7 million barrels daily.

Notably, our high oil consumption, coupled with the weakened reserve position, means that the United States for the most part, will continue to rely on the world markets for its crude oil supply. According to the Energy Information Administration's last International Energy Outlook, 70 percent of U.S. oil consumption is projected to be satisfied by crude oil and petroleum product imports by the year 2025. Regrettably, our growing dependence on foreign oil not only poses a substantial risk to our economic security, but may also serve to compromise the effectiveness of American foreign policy as high domestic demand leaves the United States susceptible to the threat of hostile oil-related political actions by foreign governments in oil-producing countries.

Iran, for example, the second-largest producer within the Organization of Petroleum Exporting Countries, has repeatedly issued thinly veiled supply disruption threats in response to U.S.-led efforts to curb that country's uranium enrichment program. In addition, Venezuela President Hugo Chavez, whose country is the United States fifth-largest source of crude imports, has similarly asserted the possibility of retaliatory oil-related actions stemming from his opposition to U.S. policy. In April 2004, Hugo Chavez threatened to stop selling oil to the United States if we did not stop "intervening in Venezuela's domestic affairs." And in February 2006, President Chavez again asserted that the U.S. Government should know that if it crosses the line it will not get Venezuelan oil.

As evidenced by these examples, America's addiction to foreign oil means that our economy and foreign policy is extremely vulnerable to oil-related threats issued by, in some cases, rogue oil-producing states. Accordingly, I welcome the witnesses today, both our Secretaries in the first panel and we also have a very distinguished panel to follow. And I am enormously happy that you have been

willing to help the committee with its work and I look forward to your testimony.

Thank you, Mr. Chairman.

Mr. ISSA. Thank you. And as you know, this is a joint hearing. I feel a little guilty, both as a junior member and as the subcommittee chairman for Energy and Resources, sitting on the dais when in fact National Security Subcommittee chairman, Chris Shays, has really done the yeoman's work on the threat to national security. In many ways, this is less about energy and more about the threat to national security.

With that, I yield to Chairman Shays.

Mr. SHAYS. I thank the gentleman. I like being just where I am, and I thank you for initiating this hearing because I think it is one of the more important hearings I have been involved in all year.

Dependency on foreign-supplied fuels is an emerging threat to our national security and to the security of the international community. Suppliers understand fuels such as oil or natural gas can be used to influence or compromise our policies. The U.S. economic growth is a key force that propels the world economy. Fuels supply the energy that helps nations increase their standard of living. Without fuel, obviously, the world would grind to a halt.

In many cases, the supply of these fuels is threatened by individual groups and regimes opposed to U.S. policies, often located in the more politically unstable parts of the world. The former Primer Minister of Malaysia Mahathir Mohamad said, "If we reduce oil output, prices will rise. Oil can be used as a weapon to protect the interests of Muslims." I find it interesting he used the word "Muslims" and not just his own folks.

Al Qaeda's Osama bin Laden and his deputy al-Zawahiri have repeatedly called for attacks on key economic targets, especially energy sources. Ali Larijani, secretary of Iran's Supreme National Council, said "we would not like to use our oil as a weapon. We would not like to make other countries suffer." Interesting way of saying, basically, they will.

Regimes and volatile regions also threaten fuel supply, and Latin America's state-controlled energy sources limit the growth of global supplies by undermining or discouraging foreign investment. Russia's cutoff of natural gas to Ukraine was a successful effort to use fuel supply as political leverage. In Subsaharan Africa, poor governance and corruption threaten the supply of fuels, making others who would use it more powerful.

President Bush highlighted the risks of foreign fuel dependency when he declared "America is addicted to oil" and insisted the United States "break this addiction." While recognizing the problem is laudable, little has been done to solve it. We must break this addiction because suppliers exploit American energy dependency to influence our policies and terrorists see oil as our Achilles heel. Frankly, it is our Achilles heel.

We are funding both sides in the war on terrorism, ironically—U.S. military and, on the other side, energy suppliers who support Islamic militants. Kicking the habit is an urgent necessity. Congressman Maurice Hinchey, a Democrat from New York, and I introduced the Energy for Our Future Act, which seeks to decrease

U.S. dependency on foreign oil, protect the environment, build a market for renewable energy, and promote energy conservation.

Our national security is threatened by our dependency on foreign countries that share neither our views on democracy nor our commitment to combat radical Islamist terrorists. With less than 3 percent of the world's oil but 25 percent of its use, we can never drill our way to energy security. Only by creating a forward-looking energy policy that reduces demand for fuels, especially oil, will we be able to lower gas prices and ensure a long-term independence.

Today's hearing highlights the growing use of energy as a weapon and the risks it poses to U.S. national security. Congressman Issa, this is a good opportunity—frankly, a great opportunity—for our two committees to examine this important issue that speaks to the security and well-being of our great Nation, and I propose that we have a number of hearings on this issue.

I just want to thank you for your efforts and your leadership, and I want to thank our witnesses for taking the time to appear before us today. I look forward to their testimony.

Thank you, Mr. Chairman.

[The prepared statement of Hon. Christopher Shays follows:]

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“Energy as a Weapon: Implications for US Policy”

Statement of Rep. Christopher Shays
May 16, 2006

Dependence on foreign-supplied fuels is an emerging threat to our national security, and to the security of the international community. Suppliers understand fuels, such as oil or natural gas, can be used to influence or compromise our policies.

United States economic growth is a key force that propels the world economy. Fuels supply the energy that helps nations increase their standard of living. Without fuel the world economy will grind to a halt. In many cases the supply of these fuels is threatened by individuals, groups and regimes opposed to United States policies, often located in politically unstable parts of the world.

*Statement of Rep. Christopher Shays
May 16, 2006
Page 2 of 3*

The former Prime Minister of Malaysia, Mahathir Mohamad, said, "If we reduce oil output, prices will rise. It [oil] can be used as a weapon to protect the interests of Muslims."

Al Qaeda's Osama bin Laden and his deputy, Ayman al-Zawahiri, have repeatedly called for attacks on key economic targets, especially energy sources.

Ali Larijani, Secretary of Iran's Supreme National Security Council, said, "We would not like to use our oil as a weapon. We would not like to make other countries suffer."

Regimes and volatile regions also threaten fuel supply. In Latin America state-controlled energy sources limit the growth of global supplies by undermining or discouraging foreign investment. Russia's cutoff of natural gas to Ukraine was an attempt to use fuel supply as political leverage. In Sub-Saharan Africa, poor governance and corruption threaten the supply of fuels.

President Bush highlighted the risks of foreign fuel dependency when he declared, "America is addicted to oil," and insisted the United States "break this addiction." While recognizing the problem is laudable, little has been done to solve it.

We must break this addiction because suppliers exploit American energy dependence to influence our policies and terrorists see oil as our Achilles heel. We are funding both sides in the war on terrorism: The US military and on the other side, energy suppliers who support Islamic militants. Kicking the habit is an urgent necessity.

Congressman Maurice Hinchey (D-NY) and I introduced "The Energy for Our Future Act," which seeks to decrease United States dependence on foreign oil, protect the environment, build a market for renewable energy and promote energy conservation.

Our national security is threatened by our dependence on foreign countries that share neither our views on democracy nor our commitment to

*Statement of Rep. Christopher Shays
May 16, 2006
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combat radical Islamist terrorists. With less than three percent of the world's oil, but 25 percent of its use, we can never drill our way to energy security. Only by creating a forward-looking energy policy that reduces demand for fuels, especially oil, will we be able to lower gas prices and ensure our long-term independence.

Today's hearing highlights the growing use of energy as a weapon and the risks it poses to United States national security. Congressman Issa, this is a good opportunity for our two committees to examine this important issue that speaks to the security and the well being of our great nation.

We thank the witnesses for taking the time to appear before us today and look forward to hearing their testimony.

Mr. ISSA. Thank you, sir.

I would ask, before we hear testimony, that the witnesses and anyone—this is a rule of the full committee—who might be advising our witnesses, please stand to take the oath.

Mr. SHAYS. This is just on the first panel, correct?

Mr. ISSA. Right, just the first panel would probably be fine.

[Witnesses sworn.]

Mr. ISSA. The clerk will report that both answered in the affirmative.

OK, please have your seats and—oh, yes. We normally do 5 minutes. We understand there is no way on a subject like this that 5 minutes is going to work. So even though it will cut into the remaining question time, 10 or so minutes would be ideal. If you are finished sooner, we will get to questions sooner, but it is up to you.

Ms. Harbert.

STATEMENTS OF KAREN HARBERT, ASSISTANT SECRETARY FOR POLICY AND INTERNATIONAL AFFAIRS, U.S. DEPARTMENT OF ENERGY; AND PAUL SIMONS, DEPUTY ASSISTANT SECRETARY FOR ENERGY, SANCTIONS AND COMMODITIES, BUREAU OF ECONOMIC AND BUSINESS AFFAIRS, U.S. DEPARTMENT OF STATE

STATEMENT OF KAREN HARBERT

Ms. HARBERT. Well, good afternoon, and thank you. Thank you for indulging us with a few more minutes to deal with this very important and complex subject.

It is a pleasure to be here today to talk about the administration's efforts to meet the energy challenges facing us today from both a national security perspective and an economic perspective. We believe that energy security is inextricably intertwined with our economic prosperity and our national security. Access to a secure, reliable, affordable supply of energy is fundamental to our national economic security. As such, and as the world's largest producer and consumer of energy, the United States must play a leading role in addressing the world's energy challenges and ensuring a secure energy future for all.

The global nature of energy markets means that supplying adequate, affordable, and reliable energy services is a responsibility we all share and one that we must address as a global community. Actions taken by any country to misuse or mismanage its energy resources without considering the global implications of its actions will have a far-reaching, negative impact.

As traditional energy resources become less available and more difficult to develop, energy security will become an even more critical component of economic security and national security. A few trends are of particular concern: The world's energy dependence on a few countries. Obviously, record-high oil prices. Resources that are now located in places that are geographically hard to reach, geologically difficult to develop, politically unstable, and unfriendly to new investment.

So to cope with this, we have a full range of possible consequences because of these trends. So we must employ forward-

looking policies that proactively address the energy challenges and maintain a U.S. diverse energy mix.

The U.S. goals to achieve a more diversified world energy market to improve global security include: First, expanding global production to meet the needs of a growing global economy. We want to see the global economy continue to grow.

Two, using technology to diversify the types of energy we consume, to improve energy efficiency, and to lessen the environmental burden of energy consumption.

Three, improving investment climates in resource-rich countries and pursuing market-based pricing.

And four, modernizing and protecting global energy infrastructure.

The United States strongly believes in the power of open markets to most efficiently determine price, supply, and demand adjudication. However, there are other countries that do not ascribe to our philosophy. These are countries which do not appear to utilize their resources for the good of their citizenry and, instead, are showing increasing and strong tendencies toward using energy as a foreign policy tool to further their agendas around the world.

So where are these resources? As you have said, the United States imports about 60 percent of its oil. The top 10 suppliers to the U.S. market are currently Canada, Mexico, Saudi Arabia, Venezuela, Nigeria, Iraq, Algeria, Angola, Russia, and the United Kingdom. We import 15 percent of our natural gas, principally from Canada, Trinidad and Tobago, and Algeria.

Now much of the world's untapped hydrocarbon resources are controlled by governments and national oil companies, with limited access afforded to United States and multinational energy companies. The new resources are concentrated in the Middle East, North Africa, Russia, and Central Asia. Saudi Arabia is estimated to have over 260 billion barrels of oil, while in Africa, Nigeria and Libya have about 75 billion barrels of oil reserves. Other countries with sizable reserves include Iraq, the United Arab Emirates, and Kuwait. And the EIA estimates that proven oil reserves are between 17 and 44 billion barrels in the Central Asian Caspian region.

As you know, Russia has proven oil reserves and they are conservatively estimated at about 60 billion barrels, and it has tremendous natural gas reserves. However, the true value of these reserves is not known, as they do not release their reserve data publicly. Russia has moved rapidly to consolidate its control over the energy sector and it has yet to enact a law outlining the terms for foreign investment. The lack of a predictable legal environment to attract investment is slowing investment and it is decreasing production.

We can't forget that our most important energy partner lies right to our north, and it is Canada. It's our No. 1 supplier of oil and it provides more than 85 percent of all of our natural gas. We do have a very strong and stable relationship with this strategic ally.

Venezuela sends about 60 percent of its oil exports to the United States, about 1.5 million barrels per day. One of the most important outlets for PDVSA, the Venezuelan state-owned oil company, lies right here on our shores. However, Venezuela production is now only 2.5 million barrels a day, and PDVSA production is down

50 percent from its peak. Venezuela has tremendous reserves, but it needs a tremendous amount of capital—we're talking upwards of \$25 billion—and significant technological expertise to tap those resources. With the increased restriction on foreign investment in the oil sector, we are seeing declining investments, reduced production, and, certainly, not the available expertise that is needed to unlock those resources.

So how is energy being manipulated today? Well, we see four recent trends, and these trends, we believe, are self-defeating and that the nations that employ them will ultimately pay the price, and not the energy market. The trends are: No. 1, limiting access to the resources for commercialization and thereby limiting supply. This ultimately impacts negatively on the economy of the Nation that is depriving its citizens of the revenue generated by the development of these assets.

No. 2, renegotiating contracts or expropriating assets. This undermines a country's credibility and reduces incentive for investment in the country more broadly.

No. 3, renationalizing assets. International energy companies have the needed capital and the needed technology to unlock challenging resources. Most—not all, but most government and national oil companies do not.

Fourth, cutting off supply. This reduces a country's reliability as a supplier, deprives its population of needed revenue, and accelerates affected countries' plans for supplier diversification.

And last, cheap petroleum. Countries that provide reduced price products or concessionary financing deprive their own economies of revenue and encourage an unhealthy reliance on non-market-priced oil, which is not sustainable over the long term.

Many have said China's growing demand is a threat. Is it? China has responded to its growing need for energy through domestic policies such as increasing domestic oil production, increasing energy efficiency, and increasing the use of renewable energy. But, it has also sought to enhance its energy security by diversifying its energy supply through imports and acquiring new assets overseas. This has prompted concerns, as I have said, that their growing demand is a threat. We believe that these will not remove energy resources from the competitive market. We believe that these resources are actually going to be consumed by China, and the effects of these purchases should be economically neutral.

So what is the real threat? The real threat is lack of investment. The International Energy Agency estimates that in order to meet world demand by 2025, \$16 trillion of investment will be required. That investment largely depends on market transparency in producing countries. Complex, capital-intensive projects require stable, predictable investment climates. With long time horizons, investment is needed now—not tomorrow, but now.

So what is the United States doing to address the situation? We believe we are increasing our energy security through engagement, cooperation, and diversity.

We maintain frequent and regular contact with producing and consuming nations. Greater transparency among nations is necessary to avert surprises and instill confidence in the market. Just this month, Secretary Bodman met with his counterparts from

Saudi Arabia and our No. 1 and 2 suppliers of oil, Canada and Mexico. We also are currently hosting a delegation from China to improve our cooperation on energy efficiency. We have to address both the producing and consuming part of this equation.

As the administration engages in a dialog with both producers and consumers, we stress the need to work constructively to promote the removal of barriers, to encourage investment and trade, as well as the need for transparency, sanctity of contracts, and the establishment of clear laws and regulations that are consistent.

I mentioned diversity. The administration has determined that, over the long term, our best energy strategy is one that is based on achieving diversity of supply—where we get it from and what it is. During his State of the Union address, President Bush outlined two new initiatives that are based on the belief that scientific discovery and technological advancement are the keys to maintaining America's economic leadership to meeting our future energy needs.

In order to secure our energy future, we are working to transform how we produce and how we consume our energy resources. The Advanced Energy Initiative will accelerate investment into clean energy technologies in order to transform the way we produce energy in our homes, the way we use energy in our homes, our businesses, and our transportation sector. The AEI is focused on technologies that we believe hold the greatest promise for American taxpayers—solar, wind, biofuels, hydrogen, nuclear, and clean coal technologies.

The second initiative, which was the American Competitiveness Initiative, the President has proposed to increase Federal investment in critical areas of research to ensure that the United States continues to lead the world in opportunity and innovation. As somebody said, we're not going to drill our way out of this challenge, we're going to innovate our way out of this challenge. We have to provide our children, the next generation of leaders, a strong foundation to carry this challenge forward.

So in conclusion, the administration believes that access to a secure, reliable, and affordable energy is fundamental to national security. We also believe that a strong, stable, and prosperous global energy market can be created by all countries—those countries who choose market-based energy policies and the power of private investment.

But moves by some countries to restrict foreign investment and increase the reach of state-run energy industries limit their ability to access capital for investment, restricting the development of access to energy supplies and infrastructure. It is a model that may hold patriotic appeal, but delivers less prosperity to citizens and less energy to markets.

Thank you for the opportunity to address this and I look forward to answering all of your questions. Thank you.

[The prepared statement of Ms. Harbert follows:]

Testimony before the Committee on Government Reform
Subcommittee on Energy and Resources
and
Subcommittee on National Security, Emerging Threats, and International Relations
U.S. House of Representatives

Karen A. Harbert
Assistant Secretary for Policy and International Affairs
US Department of Energy

May 16, 2006

“Energy as a Weapon: Implications for US Policy”

Good afternoon, Chairman Issa, Chairman Shays, and members of the Committees. I am pleased to appear before you today to discuss the Administration’s efforts to meet the energy challenges facing the United States today- from both a national security and economic aspect.

The Administration believes that energy security is inextricably intertwined with our economic prosperity and our national security. Access to secure reliable and affordable energy sources is fundamental to our national economic security. This idea is highlighted in the 2005 Energy Policy Act that was signed into law by President Bush last summer, and is a fundamental principle of the Advanced Energy Initiative and the American Competitiveness Initiative laid out by the President in his State of the Union address in January.

Energy is the lifeblood of economies around the world; global economic growth depends on adequate, reliable and affordable supplies of energy. Key foreign policy objectives, including support for democracy, trade, sustainable economic development, poverty reduction, and environmental protection rely on the provision of safe, reliable and affordable energy supplies. As the world’s largest producer and consumer of energy resources, the US must play a leading role in addressing the world’s energy challenges and ensuring a secure energy future.

The global nature of energy markets means that supplying adequate, affordable and reliable energy services is a responsibility we all share and one we must continue to address as a global community. Actions taken by any country to misuse or mismanage its energy resources without considering the global implications of its actions will have far-reaching negative impact. As traditional energy resources become less available and more difficult to develop, energy security will become an even more critical component of economic security and national security.

A few key trends are of particular concern. Most of the energy that drives world economies today is derived from fossil fuels, in particular petroleum, and this energy comes from a relatively small number of producers. The world’s dependence on a few

countries is neither responsible nor sustainable over the long term. Record high oil prices indicate limited spare oil production capacity in the world market due to a lack of investment in new supply and high levels of demand growth in many parts of the world. Resources are often located in places that are geographically hard to reach, geologically difficult to develop, politically unstable, or unfriendly to new foreign investment. Environmental and climate change challenges will only become more prevalent in the years to come and require responses in ways that provide energy for economic growth and poverty reduction, while ensuring the long-term safety of our planet.

To cope with the full range of possible consequences of these trends, we must employ forward-looking policies that proactively address the energy challenges of today and tomorrow. We must maintain a diverse energy mix coming from varied sources. In the United States, we are striving to be better consumers through our efforts to conserve energy and diversify our supply sources. We are working to make energy efficiency improvements in our homes, places of work and modes of transportation. In the long-term, the Department of Energy is focusing on transformational technologies that will fundamentally change how we produce and consume energy. In the meantime, we must use the energy resources at our disposal in the most efficient, effective, and strategic manner possible.

The U.S. goals to achieve a more diversified world energy market to improve global energy security include:

- Expanding energy production to meet the needs of a growing global economy;
- Using technology to diversify the types of energy we consume, improve energy efficiency, and lessen the environmental burden of energy consumption;
- Improving investment climates in resource-rich countries and pursuing market-based pricing; and,
- Modernizing and protecting global energy infrastructure.

Countries are pursuing different strategies to meet the increasing energy demand on their growing economies. The U.S. strongly believes in the power of open markets to most efficiently determine price, and adjudicate supply and demand. However, there are other countries that do not ascribe to our philosophy. These are countries which do not appear to utilize their resources for the good of their citizenry; and, instead, show strong tendencies towards using energy as a foreign policy tool to further their agendas around the world.

The U.S. has long recognized the importance of an unimpeded supply of energy to our economy which is why in 2001 President Bush ordered the filling of the U.S. Strategic Petroleum Reserve. It is a critical primary tool in the event of a major supply disruption. The International Energy Agency's 26 member countries, which encompass most of the advanced industrialized world, also hold strategic oil stocks equivalent to at least 90 days of oil imports for coordinated drawdown in the event of a severe supply disruption. In such an event of a supply disruption, the U.S. coordinates with other IEA members on the timing, amount and characterization of oil stock releases. The U.S. may also unilaterally

draw down the SPR. However, many countries are not part of the IEA, such as China, Russia, and India. The U.S. is working with China and India other countries to establish strategic stockholding reserves and to identify ways to coordinate a global petroleum release response if needed in a severe supply emergency.

Where are the Resources?

The U.S. imports approximately 60% of its oil. The top ten suppliers to the U.S. are Canada, Mexico, Saudi Arabia, Venezuela, Nigeria, Iraq, Algeria, Angola, Russia and the United Kingdom. We import 15% of our natural gas principally from Canada, Trinidad and Tobago and Algeria.

Now, much of the world's untapped hydrocarbon resources are controlled by governments and national oil companies with limited access afforded to international energy companies.

New resources are concentrated in the Middle East, North Africa, Russia and Central Asia. Saudi Arabia is estimated to have over 260 billion barrels of oil reserves and is making significant investments to increase its daily production by almost 30%. Iraq has tremendous reserves as do the United Arab Emirates and Kuwait. In Africa, Nigeria and Libya with combined reserves estimated at 75 billion barrels will be important suppliers to the world market. Continued violence in Nigeria poses a significant challenge for current and prospective investors.

Resource estimates for the Central Asia-Caspian region vary widely because many areas of the region have not been fully explored. The Energy Information Agency (EIA) indicates that proven oil reserves are somewhere between 17 and 72 billion barrels. Companies have estimated that resources (not proven reserves) are in excess of 100 billion barrels. EIA indicates the region's proven natural gas reserves at 232 trillion cubic feet. Again, natural gas reserves are not fully explored and could be considerably greater. The challenges are in developing and exporting these resources.

Russia has vast oil and gas reserves. Its proven oil reserves are conservatively estimated at about 60 billion barrels and the world's largest natural gas reserves of about 1680 trillion cubic feet. However, Russia does not make its reserve data public so there is uncertainty over these figures.

There are significant challenges in both Russia and Central Asia to tap these reserves, including problems with the investment and business climate, corruption, rule of law, and transparency. Each country faces its own challenges in improving the environment that will encourage more energy investment and business. In Russia, the government has moved rapidly to consolidate its control over the energy sector, and has yet to enact a law outlining the terms for foreign investment. We expect the legislation will place restrictions on companies deemed foreign and limit foreign investors from developing "strategic" oil and gas or mineral deposits. At this time, the Russian government has not specified what type of ownership structure constitutes a foreign firm or which assets will

be considered strategic. This lack of predictable legal environment has slowed investment and resulted in decreased production.

We must not forget that our most important energy partner in the world is Canada. It is our number one supplier of oil. The Canadian provinces of Alberta, British Columbia and Saskatchewan provide the vast majority of our natural gas imports, and Canada provides more than 80 percent of all natural gas entering the United States. There are a number of new oil and gas projects on the horizon in Canada. We have a strong, stable relationship with this strategic ally.

Mexico also has great potential to increase its output. However, provisions in its constitution prohibit private investment in the oil and gas sector, limiting the country's production and ability to access new technologies that would spur output. Mexico ranks fourteenth in world proven oil reserves with 12.9 billion barrels, but must import both gasoline and 25 percent of its natural gas needs from the United States, even though it has the potential to be a natural gas exporter given its sizeable reserves.

Venezuela sends around 60 percent of its oil exports to the United States, approximately 1.5 million barrels per day. One of the most important outlets of Venezuela's state oil company Petroleos de Venezuela (PdVSA) lies on our shores. Venezuela fitted its CITGO refineries in the United States to use Venezuelan heavy, sour crude oil as feedstock, and few refineries of this kind exist anywhere in the world in numbers sufficient to make Venezuela crude oil imports economic.

Venezuela has significant additional heavy oil potential. According to PdVSA, Venezuela has as many as 270 billion barrels of extra-heavy and bitumen deposits. Venezuela would require significant amounts of investment, similar to the current investment levels in Canada's oil sands sector (around \$25 billion to date, and projected to reach \$100 billion by 2020) to develop these resources. Venezuela needs technological expertise to fully develop this important reserve. Currently PdVSA production is declining significantly - producing almost 50% less than its peak. Total Venezuelan crude output is now only 2.5 million barrels day total crude output (EIA, 2/06). This is the lowest level of PdVSA production since the oil workers strike in Venezuela in 2002-2003 and emphasizes PdVSA's need for investment and technical expertise. Increasing restriction on foreign investment in the oil sector will lead to declining appetite for investment and declining production.

How is Energy Being Manipulated Today?

We are witnessing growing tendencies in producing countries to manipulate the use of their natural resources. However, we believe that all of these efforts are self-defeating and the nation that employs them itself pays the ultimate price not the energy markets. As was shown in the aftermath of Hurricanes Katrina and Rita, the market does adjust to changes in supply. Recent trends include:

- 1) Limiting access to the resources for commercialization thereby limiting supply. However, this ultimately has a negative impact on the economy of the nation that is depriving its citizens of the revenue generated by the development of these assets.
- 2) Renegotiating contracts or expropriating assets. This undermines the country's credibility and reduces incentive for investment in the country broadly.
- 3) Renationalizing assets. International energy companies have the needed capital and technology to unlock these challenging resources, most government and national oil companies do not.
- 4) Cutting off supply. This reduces the country's reliability as a supplier, deprives the population of needed revenue and accelerates affected countries' plans for supplier diversification.
- 5) Cheap petroleum. Countries that provide reduced price product or concessionary financing deprive their own economies' of revenue and encourage an unhealthy reliance on non-market priced oil which is not sustainable.

Is China's Growing Demand a Threat?

China has responded to its growing need for energy through domestic policies such as increasing domestic oil production, working to increase energy efficiency to maximize output from existing resources and increasing the use of renewable energy, but it has also sought to enhance its energy security by diversifying its energy supply through imports and by acquiring overseas assets.

In recent years, the Chinese have significantly increased the number and geographic distribution of energy assets and investments. Chinese national oil companies have invested in oil ventures in over 20 countries. This has prompted concerns that actions by Chinese companies to acquire energy assets will "remove" energy resources from the competitive market, which, according to some, has the effect of constricting supply and thereby raising world prices. However, because China can be expected to consume the vast majority of any resources it does acquire, the effects of these purchases should be economically neutral. Even if China's equity oil investments "remove" assets from the global market, in the sense that they are not subsequently available for resale, these actions merely displace what the Chinese would have otherwise bought on the open market. Ultimately, we believe that the market is the best adjudicator of price, supply and demand.

The Real Threat: Lack of Investment

The International Energy Agency estimates that world energy consumption will grow by as much as 57% by 2025 requiring over \$16 trillion in investment to meet that demand. That investment depends on market transparency in producing countries. Clear business practices and stable regulatory frameworks for investment in the energy sector --

including increased opportunity for foreign investment -- will help ensure a sufficient supply of energy for a growing global economy. Market-based pricing of energy resources worldwide will also encourage responsible and efficient consumption.

Energy projects are complex, capital intensive and take years to bring new resources on line. Pipelines which cross national boundaries are even more time intensive. Therefore, the investment needed to unlock these untapped natural resources needs to be mobilized now.

Security through Engagement and Cooperation

The Department of Energy maintains frequent and regular contact with producing and consuming nations. Likewise we also maintain open lines of communication with leaders in the private sector who are the principal operators of much of the international energy assets and infrastructure. Greater transparency among nations is necessary to avert surprises and instill confidence in the market. Just this month Secretary Bodman met with his counterparts from Saudi Arabia and our number one and number two suppliers of oil, Canada and Mexico. This month, the Department is hosting a delegation from China to improve our cooperation on energy efficiency as a means to reduce strain on supply.

In April Secretary Bodman participated in the International Energy Forum where 69 producing and consuming nations convened to discuss how to fuel our future. During his visit to Doha Secretary Bodman also held bilateral talks with a number of nations on the need for responsible actions to bring stability to the energy market. There is a need for free flowing information between consumers and producers and this information sharing is the first and, perhaps the most important step towards cooperation.

Russia will host the G-8 Summit in St. Petersburg in July. Russia has chosen energy security as one of the Summit agenda items. We are hopeful that the outcome of the G-8 will be a better understanding of the importance of promoting reliability, diversity, efficiency, transparency and rule of law.

As the Administration engages in dialogue with both producing and consuming nations we stress the need to work constructively to promote the removal of barriers to energy investments and trade as well as the need for transparency, sanctity of contracts and the establishment of clear laws and regulations that are consistent. Our efforts with consuming nations are focusing on diversifying energy portfolios, energy efficiency approaches and ways to work towards new technologies that we believe can change the way we power our homes, our businesses and our automobiles.

Security through Diversity

The Administration has determined that over the long term our best energy strategy is one based on achieving diversity of supply. We are making every effort to address America's short term energy needs while ensuring that we are able to meet future energy demands. Reducing America's dependency on imported oil has been and will continue to be a

priority for this Administration. In 2001, President Bush put forward the National Energy Policy, which laid out over 100 recommendations to increase domestic energy supplies, encourage efficiency and conservation, invest in energy-related infrastructure, and develop alternative and renewable sources of energy. Since 2001, the Administration has spent nearly \$10 billion to develop cleaner, cheaper, and more reliable alternative energy sources.

In order to secure our energy future, we will work to transform how we produce and consume our energy resources, and ensure the next generation of leaders has strong foundations in science and technology. During his State of the Union address, President Bush outlined two new initiatives that are based on the belief that scientific discovery and technological advancement are the keys to maintaining America's economic leadership and meeting our future energy needs.

The Advanced Energy Initiative (AEI) will accelerate investment into clean energy technologies in order to transform the way we produce and use energy in our homes, businesses and our transportation sector. To achieve these goals, the President has requested \$2.1 billion in FY 2007 -- a 22 percent budget increase -- to develop new technologies and alternative sources of energy to help diversify and strengthen our nation's energy mix. The AEI is focusing on technologies that we believe hold the greatest promise for American taxpayers, including solar, wind, biofuels, hydrogen, nuclear, and clean coal technologies.

The President's Biofuels Initiative is another essential part of the AEI. The initiative aims to use non-food based biomass in the production of transportation fuels, electricity, and other products.

America has an abundant amount of coal, enough to last more than 200 years. In 2001, President Bush committed \$2 billion over 10 years to accelerate R&D in clean coal technologies that could generate affordable electricity while meeting emerging environmental regulatory standards. The Administration's FY 2007 Budget request will nearly complete the President's commitment four years ahead of schedule.

Another important component of the Advanced Energy Initiative is the Global Nuclear Energy Partnership (GNEP). This new initiative is a comprehensive strategy that could help meet our growing demand for energy, both here at home and globally. GNEP enables an expansion of nuclear power in the U.S. and around the world, promotes non-proliferation goals, and helps resolve nuclear waste disposal issues.

Through the American Competitiveness Initiative, the President has proposed to increase Federal investment in critical areas of research to ensure that the United States continues to lead the world in opportunity and innovation, and provide American children with a strong foundation in math and science.

Concluding Remarks

The Administration believes that access to secure, reliable and affordable energy is fundamental to national security. We also believe that a strong, stable and prosperous global energy market can be created by all countries basing their energy development, transportation and use on market reliance; by allowing for private capital to ensure optimal development; and by using the best technologies and a broad range of energy resources to give consumers the best choices.

However, energy security depends on the choices countries make, and we are concerned that some countries are making choices that will not optimize the development of energy resources. Moves to restrict foreign investment and increase the reach of state-run energy industries limit their ability to access capital for investment, restricting the development and access to energy supplies and infrastructure. It is a model that may hold patriotic appeal but delivers less prosperity to citizens.

We strongly believe in the power of private investment and market-based energy policies. Other countries may make other choices, but their long-term prosperity and the well-being of their citizenry are at stake. The United States stands ready to work with our partners around the world to achieve a stronger energy future for all of our citizens – one that is grounded in open and integrated markets and open and transparent economic regimes.

Thank you for the opportunity to address the committees and I look forward to answering any questions you have.

Mr. ISSA. Thank you.
Mr. Simons.

STATEMENT OF PAUL SIMONS

Mr. SIMONS. Thank you, Mr. Chairman.

Chairman Issa, Chairman Shays, Congressman Lynch, it's a real pleasure to be here this afternoon to testify on the critical nexus of energy and national security. Let me ask that my full written statement be entered into the record and I will provide just a few short oral remarks.

First of all, let me say that from the State Department perspective we welcome the attention being paid to this issue by the House and this committee. Mr. Chairman, in particular we appreciate your interest in this issue, demonstrated by your participation in the first oil ceremony inaugurating the opening of the Baku-Tbilisi-Ceyhan pipeline in Georgia last year. We also appreciate your active involvement in our energy diplomacy with Kazakhstan. I recall we were together last September in San Diego for an important conference.

An important foreign policy success, the BTC pipeline, as you know, will not only enhance global energy security, but it will also go a long way toward strengthening the sovereignty and economic viability of the nations of that region. So by maintaining diversified sources of supply, as exemplified by the BTC pipeline, nations can help make their economies more resilient to disruptions in energy supply. Energy is, after all, a fundamental driver of economic growth and development around the world.

As you've noted, as several of the committee members have noted, we're largely in a tight situation today that's been created by demand growth and basically global economic growth—which is a good thing. Greater wealth and prosperity may enhance national security by providing the underpinnings of more peaceful, democratic, and cooperative relations. But they also bring increasing pressure on world energy markets, which we've seen in the last couple of years, particularly the markets for oil, on which most of the world's transportation depends, and of course, more lately, on markets for gas as well, on which a growing share of the world's electric power production depends.

So whether in relation to these tight market conditions, or an attempt to take advantage of them, we are witnessing, as the President has pointed out and as Secretary Rice has pointed out, we're witnessing which do engage in behavior which does undermine global energy security.

In order to address this challenge, we need to develop a portfolio of both near-term, medium-term, and long-term measures. As is acknowledged in the very fine report that was submitted by this committee, energy is an issue that requires long lead times. So on a number of these issues we need to simultaneously pursue a short-term strategy, a medium-term strategy, as well as a long-term strategy. And as Assistant Secretary Harbert pointed out, the President has laid out elements of short-term, medium-term, and long-term, both in the State of the Union message as well as in his April 26th speech, where he recognized that the Nation is addicted to oil.

The President did outline a plan in which we can broaden our energy options, and our mission in the State Department is to play the critical role to engage our friends and allies around the world in implementing this vision with us, to basically bring the international community on board for the President's vision. And we do this every day, in conjunction and in close cooperation with our colleagues in the Department of Energy as well as other U.S. Government agencies, through a number of different tools. And I think Assistant Secretary Harbert has laid out most of these. I don't think I'm going to repeat them in my statement, but I'll very briefly summarize five general areas which I think correspond closely to the areas that she has outlined.

First, the promotion of diversified energy supply and transit options, this concept of diversification. Energy through diversification. And again, we appreciate the committee's report also made reference to this tactic.

Second, enhancing the investment climate for energy exploration and development. This is something we work on every day, and we appreciate, again, the leadership of the chairman on the energy climate issue. And we have had some successes here. As you know, we work closely with the government of Kazakhstan, the government of Azerbaijan, more recently with the Libyans in the disassembly of our sanctions regime and the very positive announcement yesterday, and also with the government of Saudi Arabia, which has undertaken a major initiative to expand production. So we are looking at investment climate improvements across a wide variety of suppliers.

Third, encouraging a transition to market pricing. This is extremely important, especially in an era when prices are high. We have to make sure that price signals are appropriately transmitted to the markets in all of the consuming countries around the world so we have the proper market response and market behavior. And this is something that we pursue through our USAID programs, through the multilateral development banks, and through bilateral dialogs.

Fourth, advancing research and development of transformational energy technologies. The Department of Energy has the lead on a lot of this, but we've created some international partnerships, including the Asia-Pacific Partnership, where the State Department has a very active role on the technology side.

And finally, improving energy efficiency. The President has laid out some important measures in the State of the Union and in the April 26th announcement—a plan, for example, to expand the use of plug-in hybrids and to expand tax benefits for hybrid vehicles. These are the kinds of steps that we would like to see expanded also elsewhere in the world.

So let me conclude by saying that energy policy is very much an important foreign policy priority for this administration. It's a critical issue in our bilateral relationships with key consuming, producing, and transit countries. We work closely—we have a very good and strong interagency team that works on this, and we look forward to answering any of your questions.

Thank you.

[The prepared statement of Mr. Simons follows:]

**Statement of Paul E. Simons
Deputy Assistant Secretary for Energy, Sanctions, and Commodities
Bureau of Economic and Business Affairs
Department of State
Before the Committee on Government Reform
U.S. House of Representatives
May 16, 2006**

Mr. Chairman, honorable committee members, it is a pleasure to be here today to testify on the critical nexus of energy and national security. We welcome the attention being paid to this vital issue by the House and this Committee. Mr. Chairman, we appreciate your particular interest in this issue demonstrated by your participation at the First Oil Ceremony inaugurating the opening of the Baku-Tbilisi-Ceyhan (BTC) pipeline in Georgia in October 2005. A major foreign policy success, the BTC pipeline will not only enhance global energy security but also go far toward strengthening the sovereignty and economic viability of the nations in the region.

By maintaining diversified sources of supply, as exemplified by the BTC pipeline, nations can help make their economies more resilient to disruptions in energy supply. Energy is, after all, a fundamental driver of growth and development around the world, and the use of energy has been steadily expanding along with the world's economies. Greater wealth and prosperity may enhance national security by providing the underpinnings of more peaceful, democratic and cooperative relations. But they also bring increasing pressure on world energy markets – particularly markets for oil, on which most of the world's transportation depends, and markets for gas, on which a growing share of the world's electric power production depends. Whether in reaction to these tight market conditions or in an attempt to take advantage of them, we are witnessing countries that engage in behavior which undermines global energy security.

In order to address this challenge, we must develop a portfolio of near- and long-term measures. To reduce the tightness in the world petroleum market in the near-term, we must work to increase spare production capacity. However, to achieve our long-term goals of energy security, we must acknowledge our “addiction to oil.” In the State of the Union address, the President outlined a plan by which we can broaden our energy options. The mission of the State Department is to engage our friends and allies around the world in implementing this vision

with us. We do this everyday through our bilateral and multilateral relations with other countries in promotion of diversified energy supply and transit options; enhancing the investment climate for energy exploration and development; encouraging a transition to market pricing, improving energy efficiency, and advancing research and development of transformational energy technologies.

Diversification of Supply and Transit

As I alluded to earlier, a key factor in global energy security is diversification. This concept is important to producers, transporters and consumers. We actively encourage all nations to facilitate, as practical, the development of a diversity of sources of energy supply and modes/routes of transit in order to lessen the impact of supply disruptions---whether they are natural or man-made.

As a result of the Russia-Ukraine gas dispute, European gas consumers are now increasingly focused on the need to diversify their natural gas supplies, increase efficiency and utilize alternative sources of energy. Such alternatives include the development of gas resources in the Caspian region and the Middle East and East-West transit routes through Turkey. Europe should continue to explore opportunities to expand its gas pipeline links with North Africa. In addition, liquified natural gas (LNG) technologies are growing increasingly affordable, and offer Europe a way to diversify its gas supplies with LNG shipments from North Africa, Nigeria, and the Persian Gulf.

Beyond diversifying the sources of supply and transit routes, Europe's collective energy security can be greatly improved through better integration of the electric, oil, and gas transmission infrastructure systems among energy consuming countries. Again using the example of Europe, the recent disruptions in Russian gas supply demonstrate that gas does not flow smoothly among the European nations. Particularly in Central Europe, the pipelines largely only carry westward flowing gas and oil. More electric, gas, and oil "interconnectors" should be established within Europe in order to achieve efficient and fluid distribution in all directions of needed energy to affected regions during supply disruptions.

Diversification of energy supply, of course, also includes non-hydrocarbon based technologies. Nuclear power will be key in meeting the twin challenges of energy security and greenhouse gas emissions management. New technologies have addressed concerns about safety and emerging technologies may greatly

reduce nuclear waste. Several nations have already joined us in a multilateral partnership known as the “Generation IV International Forum” which conducts research and development for the next generation of safer, more affordable, and more proliferation-resistant nuclear energy systems. This new generation of nuclear power plants could produce electricity and hydrogen with substantially less waste and without emitting any air pollutants or greenhouse gas emissions. Since the Forum was formally established in July 2001, the United States has led the development of a technology roadmap, and increased support for R&D projects carried out in support of the Forum's goals.

Most recently, the United States has also put forth a bold new vision of the future of nuclear power known as the “Global Nuclear Energy Partnership” (GNEP). Through GNEP, the United States will work with other nations possessing advanced nuclear technologies to develop new proliferation-resistant recycling technologies in order to produce more energy, reduce waste and minimize proliferation concerns. Additionally, these partner nations will develop a fuel services program to provide nuclear fuel to developing nations allowing them to enjoy the benefits of abundant sources of clean, safe nuclear energy in a cost effective manner in exchange for their commitment to forgo enrichment and reprocessing activities, also alleviating proliferation concerns.

Enhancing the Investment Climate

According to the International Energy Agency, \$2.2 trillion in investment in worldwide oil production is needed by 2030 to meet forecasted demand growth. Worldwide, there remain significant reserves of oil and gas which remain untapped, and at the same time, adequate funds are available in capital markets to finance upstream and downstream investments. However, new supplies of oil and gas are concentrated in countries that lack open and transparent investment regimes. The main challenge, thus, is not the physical deficit of such resources per se but rather the need to create, through joint efforts, the proper environment to realize this potential. We welcome measures aimed at attracting private investments and improving the overall sustainability of the energy sector development. Governments that create transparent and non-discriminatory regulatory environments, favorable investment climates, rule of law and physical safety of key energy infrastructure facilities contribute substantially to the achievement of those goals. At the same time, to ensure optimal benefits to all and building of civil society we will encourage adequate environmental impact assessment of such programs.

Moving to Market Pricing

It is also in our interest to promote a gradual transition to market prices in the economies of developing nations in order to provide for the most efficient utilization of limited world energy supplies. The dispute between Ukraine and Russia over natural gas put the spotlight on below-market pricing for energy. A similar issue is “administered pricing” policies which are in place throughout the developing world, including in major consumer nations such as China. Administered pricing interferes in the operation of markets by insulating consumers from price signals, which in turn encourages demand growth beyond what the markets would ordinarily support.

In addition, to enhancing the flow of energy, coordinated efforts by our friends and allies to promote an improved investment climate and market-based exchange of oil and gas can also affect the chances for real democratic reform to take root in many energy producing and transiting countries. The lack of transparency into the energy deals by many of these nations only sustains cronyism which stifles the rule of law and efforts for genuine reform. Our energy security, and most importantly, our national security writ-large are naturally enhanced when our neighbors and economic partners are democracies instead of tyrannies and kleptocracies. A focus on transparency and good governance will also limit the ability of those in energy producing states that recycle our energy dollars to finance terrorist organizations.

Russia’s chairmanship of the G8 offers a unique, although limited, opportunity to push for important commitments on energy security. To be effective, G8 partners need to stress the continuing need for reliability and transparency of energy supply. We should encourage Russia to engage in greater cooperation with the IEA as a non-member country and support greater Russian integration into the global energy system based on market-oriented principles.

Energy Efficiency

Moving to market pricing will be a key step in spurring a greater focus on energy efficiency within Russia, Ukraine, as well as the rest of the transitioning and developing economies of the world. USAID is launching a new program to

assistance to Ukraine to improve efficiency and respond to the higher gas import prices. I must emphasize that in the immediate term energy conservation and efficiency provide by far the most important tool in improving our collective energy security. We support programs that provide for incentives for enhanced energy efficiency, conservation, and reductions in greenhouse gas emissions. USAID will be launching a \$1 million energy efficiency program aimed at leveraging \$100 million of multilateral development funds for industrial energy efficiency in Ukraine. In the United States, for example, the Energy Star labels, which signal high efficiency in office buildings and appliances, were initially developed for domestic use, but they have proven so successful that they have been adopted in many countries. Manufacturers in some 25 countries are producing EnergyStar-compliant equipment. In order for Americans to better take advantage of the efficiency benefits of electric-hybrid and clean diesel technologies, the President has called on Congress to make all such vehicles sold this year eligible for federal tax credits. A similar program is the innovative International Methane to Markets International Partnership, which takes wasted methane gas from oil and gas systems, coal mines, landfills, and agricultural wastes and uses it productively. This important climate change and energy initiative now has 17 countries participating.

Supporting New Technologies

Since the President launched his National Energy Policy in 2001, the U.S. government has spent nearly 10 billion to develop cleaner, cheaper, and more reliable alternative energy sources. The President's "Advanced Energy Initiative" provides for a 22 percent increase in research by the Department of Energy (DOE) to find clean alternatives to oil imported from unstable parts of the world. In order to change the way Americans power our homes and offices, DOE will invest more in clean coal technology, solar and wind technologies, and nuclear energy. DOE will increase research in better batteries for hybrid and electric cars, and in pollution-free cars that run on hydrogen. I am pleased to report that our efforts have helped lower the cost of renewables significantly and we expect further gains and also that our hydrogen program is on track with the President's vision of commercially available vehicles in a roughly 2020 timeframe. Additional funding will be directed to cutting-edge methods of producing ethanol. The United States has initiated a host of multilateral energy technology RD&D coalitions and looks forward to expanding its international collaboration on cutting-edge energy technology research with its friends and allies in order to better utilize our supplies

of raw materials and to reduce our dependence on imported energy from volatile regions of the world.

Engagement

The International Energy Agency

In order to advance the policy objectives of diversification, efficiency, market pricing, technological development, and enhanced investment climates, the USG maintains a wide range of bilateral and multilateral engagements with energy producing, consuming and transiting countries.

Chief among the multilateral fora is the International Energy Agency (IEA). The primary role of the IEA is to coordinate measures in times of oil supply emergencies. While the global oil markets are tight, the U.S. and other IEA member nations have 1.4 billion barrels of crude and refined product in strategic reserves to respond to supply disruptions. Most notably, the IEA and its 26 member countries initiated an emergency response to oil supply shortages caused by Hurricane Katrina less than 48 hours after the extent of the supply disruption became clear. The response included the release of 40 million barrels of oil into the market over a period of sixty days, providing supply to the market.

International Energy Forum

In addition to the IEA, the U.S. is also an active participant in a multilateral producer-consumer dialogue. The State Department participated in the 10th Meeting of the Ministerial-level (IEF) International Energy Forum, which was hosted by Qatar in April. The IEF meeting brought together all of the world's major energy producers and consumers for an open discussion of global energy issues and challenges. Over 60 countries and international organizations were represented. Discussion focused on "Fuelling the Future" with an emphasis on how to meet the investment challenge and reduce uncertainty and volatility in energy markets. China and Italy co-hosted the meeting. The next meeting will be in 2008 in Italy, but the IEF process will continue over the next two years at a more technical level where we, including State Department representatives, and other producers and consumers will work at reducing barriers to energy production and trade and increasing global efficiency.

East and South Asia

To facilitate the transition to open, transparent and efficient energy markets, we are deeply engaged in Energy Dialogues with India and China and work closely with all of the APEC economies on APEC's Energy Security Initiative. One goal of these talks is to encourage these emerging consumers to recognize that they are now stakeholders in the system, not apart from it, and unilateral efforts to guarantee oil security, like buying oilfields, will not guarantee their energy security. But collective energy security can be advanced by improving transparency, particularly of demand data; by partnering with major consumers in building strategic stocks and, as important, prudent policies under which to use them; and by pursuing energy efficient technologies and greater fuel diversification.

We also encourage key non-member drivers of global demand to collaborate with – and move toward greater association with --the International Energy Agency. Through its non-member country outreach program, the Agency maintains several avenues (e.g. bilateral and multilateral policy and technical meetings, energy sector surveys and reviews, international collaboration on energy technology and R&D) to disseminate the latest energy policy analysis and recommendations on best practices. The IEA can assist non-member countries in designing policies to accelerate market-based domestic policy reforms, build strategic petroleum stocks, employ clean energy technologies, and enhance energy efficiency.

In order to obtain the active collaboration of critical energy-consuming and energy-producing countries in Asia in strategies for improving energy security, reducing pollution, and addressing the long-term challenge of climate change, the United States, along with Japan, Australia, China, India, and South Korea, recently launched the Asia-Pacific Partnership on Clean Development and Climate in January 2006. The Partnership will focus on voluntary practical measures taken by the six countries in the Asia-Pacific region to create new investment opportunities, build local capacity, and remove barriers to the introduction of clean, more efficient technologies.

Eurasia

The US interagency community with responsibility for energy affairs recently initiated a review of Eurasian energy dialogues to assess their

effectiveness in implementing U.S. government policy and furthering global energy security, and to determine if the current mechanisms require changes or if additional dialogues are needed. The U.S.-Russia Energy Working Group was reestablished in 2002 with the Department of Energy in the lead at the Deputy Secretary level. The group focuses on investment issues including the legal and regulatory framework, oil market, energy efficiency and renewables, new technologies, and data exchange. The next meeting is likely to take place in the fall of 2006. DOE is working to reinvigorate the exchange. The plan is to focus the annual meetings on specific issues of mutual interest such as LNG markets and regulations. Cooperation will continue on energy efficiency, oil spill monitoring and prevention, and exchange of information on reserve data collection and an oil and gas regulatory framework. There will be continuing effort to evaluate the progress and benefits of this dialogue and seek new ways to enhance cooperation and understanding of energy markets.

The U.S. government is also working toward intensifying its engagement with officials from Eurasia to encourage development of commercially viable pipeline routes to transport Central Asian gas to Europe and other markets. In the South Caucasus, the U.S.-Azerbaijan Energy Dialogue, which occurs annually at the cabinet level, addresses such issues as development of oil and gas resources, regulatory reform, environmental and technological issues, investment climate, market-based development of the electric power industry, investment issues, energy efficiency and renewables, and science cooperation. Similar exchanges are carried out through the U.S.-Ukrainian Bilateral Coordinating Group, the U.S.-Kazakhstan Energy Partnership, and the U.S.-Turkish Dialogue. Regional cooperation in electricity in Central Asia is coordinated by the USAID regional Mission in Kazakhstan and USAID is currently looking at expanding this cooperation to markets in Afghanistan and on to Pakistan and India.

The recent Russian/Ukraine natural gas dispute and the sustained high price of oil on world markets have also prompted Europeans from Portugal to Poland to re-examine their respective situations with respect to security of gas supply. Sensing a need to improve communication and coordination among member states, which retain authority for determining their individual energy policies, the European Commission has taken the lead on this issue by publishing on March 8, a "green paper" outlining a common "strategy for sustainable, competitive and secure energy" in Europe. The current state of affairs presents an opportunity for us to engage the EU on strategies to enhance its energy security posture---and by extension, our own. In the run-up to the U.S.-EU summit in June, the US

interagency community with responsibility for energy affairs is in regular contact with its counterparts in the European Commission and member states to identify areas for enhanced cooperation.

The USAID is already working with the European Commission on developing and harmonizing energy regulatory frameworks to create a more transparent and attractive climate for energy diversification investments. In addition, since 2002 USAID technical assistance programs support the proposed Energy Community Treaty for Southeast Europe aimed at creating electricity and gas markets in the energy transit countries of Bulgaria, Romania, Serbia, Macedonia, Bosnia and Albania, with which Greece, Italy, Austria, Moldova and Hungary also participate, under the leadership of the European Union. Other possible areas of focus may include geopolitical engagement with third countries, energy efficiency, and alternative fuels.

Western Hemisphere

Central America and the Caribbean are just one area where energy policy and foreign policy concerns are apparent. The region is one of most oil dependent regions of the world, given a lack of access to other energy resources. The Caribbean is being tempted with the promise of “charge card” oil, easy credit terms that can only add to the already strained fiscal balances of many countries in the region. State is working closely with USAID and DOE in this region and elsewhere to link the issues of poverty alleviation, energy security, and environment and climate change. We are encouraging the Inter-American Development Bank and other international Financial Institutions to pay more attention to the pressing energy needs there. And, with the partnership of the Congress, the CAFTA will help lift all economic boats in the region.

We are supporting Mexico’s Mesoamerica Initiative to integrate Central American energy grids. We are doing so by using our influence in the IDB and bilaterally by focusing and expanding USAID, EPA and TDA programs there. In March we expanded our engagement to partner with the Central American Integration Secretariat on clean energy development. We are working with the Central Americans to identify and fast track a key matrix of energy sector projects and policy reforms. At the request of President Fox, we will observe the upcoming Mesoamerican Summit in the Dominican Republic on June 3.

The United States helped pioneer the Summit of the Americas Hemispheric Energy Initiative and, over the past decade, we have helped to foster a dramatic opening of Latin America's energy sector. But the region has seen many changes in the direction of energy policy, away from the free market liberalization of the 1990s, so our model and our message is not as in vogue as it once was, but we still believe it is the right message. The theme of today is contract renegotiation, nationalization and the erection of new barriers to energy trade across borders. Oil windfalls are being spent on short term consumption at the expense of long term investment. We are working with lead hemispheric institutions, like the international financial institutions, to promote economically sound long term solutions without making ourselves easy targets for populist sloganeering.

Even though we have broader differences with Venezuela, we have said both publicly and privately that we seek to maintain good bilateral relations on issues of mutual interest, such as energy, trade, and counter narcotics. Ambassador Brownfield stands ready to meet with Energy Minister Ramirez just as soon as the Minister can receive him. It is worth noting that Ambassador Brownfield has repeatedly sought to meet with Minister Ramirez and has been unable to secure such a meeting, which is unusual given that we remain Venezuela's largest oil market. We have also cooperated very closely with the Government Accountability Office on their study of the reliability of our oil supplies from Venezuela. We look forward to the release of their study in June as it will no doubt help calibrate our diplomatic engagement on this key energy relationship.

Africa

The State Department is also closely monitoring the events in sub-Saharan Africa --- a growing source of our energy inputs. In fact, the nations of sub-Saharan Africa now supply the United States with approximately 18 percent its annual crude oil imports. However, in recent weeks, up to a quarter of Nigeria's daily production has been shut-in at times due to the ongoing instability in the Niger Delta. We are taking steps with the Nigerian and British governments to discuss ways of responding to the conflict in that oil producing region of Nigeria. Our three governments have met twice this year --- most recently in the last week of April --- to seek a solution. They will meet once more in Nigeria in July. Among the options considered are strengthening coastal security, controlling financial crimes, reducing small arms trafficking and increasing development in the Niger Delta. Nigeria is considering offers by the United Kingdom and United States for targeted technical assistance in these areas. As Africa's most populous

democracy and largest oil producer, Nigeria faces challenges in advance of 2007 elections. However, we feel that our engagement with Nigeria in diverse areas like developmental assistance, promoting democracy and supporting economic growth remain the best ways of addressing the complex problems seen in West Africa's largest country. Regional cooperation in Africa is best illustrated through the West Africa Gas Pipeline, a private sector project supported by the World Bank and USAID, which will bring wasted gas in Nigeria to the neighboring countries of Benin, Togo, and Ghana, and replace fuel oil used in power generation.

Much of the strife in the Niger Delta arises from the belief held by many of that region's inhabitants that the riches generated by the country's oil industry have eluded them due to the corruption and incompetence of government officials. Part of the solution to ensuring that the benefits of oil and gas development are managed in a transparent manner --- not just in Nigeria but around the world --- is the Extractive Industries Transparency Initiative (EITI). EITI is a UK initiative launched in 2002. The U.S. supports EITI as one policy tool in our comprehensive anticorruption/transparency kit set forth in the G8 Evian and Sea Island anticorruption and transparency initiatives. EITI focuses on extractive industries payments and budget revenues in developing countries. In FY 2006, the U.S. will contribute \$1.0 billion in Economic Support Fund (ESF) assistance to be administered by USAID to support EITI implementation and to strengthen the role and capacity of civil society organizations in the EITI process. U.S. companies are generally supportive of EITI, and emphasize the need for keeping initiative voluntary and maintaining a focus on host government responsibilities rather than on company obligations. Other key attributes of the Initiative is its universality (i.e. that national petroleum companies must be included); respect for contractual obligations, local laws and regulations; and confidentiality of proprietary information.

At Gleneagles, the G8 endorsed the UK's call to "widen and deepen" EITI participation and implementation. A 16-member multi-stakeholder International Advisory Group (IAG), which includes the U.S., has been tasked to develop the governance structure, identify funding sources, define standards and methods for validating country participation, and consider incentives to encourage EITI participation. The fourth meeting of the IAG took place on April 5, 2006, in Baku, Azerbaijan. The IAG will submit its proposals for approval to a plenary conference which Norway has agreed to host October 16-17, 2006, in Oslo.

Conclusion

Mr. Chairman, in these few minutes here today, I hope I have been able to provide the Committee an adequate description of the tools with which the State Department uses to implement the President's plan for securing our energy future. The threats to stable energy markets come in various forms. By working with like-minded nations, we can broaden our energy options and thereby diminishing capacity and/or motivation for others to act in irrationally in regards to energy security.

Mr. ISSA. Thank you. Thank you both for putting as much as you can into such a short period of time.

Secretary Simons, because you have a short window, we will concentrate on your statement first, limiting ourselves, including myself, to 4 minutes each. And then we will do a second round. So Secretary Harbert, understand that it is not that all these questions wouldn't go for you, but I think we are going to try and respect the fact that you are not flying MilAir and it won't wait.

Secretary Simons, I am going to be very brief in my questions. You and I have been interested in places in which we can expand not the quantity but also diversification of delivery and source. I am particularly concerned that, if I read this correctly, the areas that are down in production, may be there for a long time. Nigeria in 2006 appears to be down by 550 thousand barrels a day. Venezuela down by 400 thousand under their new nationalized regime. Iraq, as you know, is down about 900 thousand. And for a number of explainable reasons, the U.S. Gulf was down about 325.

That puts us about 2 million barrels down. How much of our \$3 a gallon and \$70 a barrel should we attribute to this group of circumstances versus, quite candidly, other forces in the world?

Mr. SIMONS. Thank you, Mr. Chairman, for that question.

As I think I pointed out in my opening statement, one thing I think we need to keep in mind is that oil investment has very long lead times and there are very, very long cycles that are involved. So the production that's coming on board today really comes about as a result of investment decisions that were made back in 1997, 1998. And the price of oil, of course, is very cyclical as well. So we had low prices in the late 1990's, throughout the 1990's, and we really had a deficit of investment. So we don't have the volumes coming onstream right now that take care of the expansion in global economic growth. But a lot of this had to do with the low price environment back then. Today we have, obviously, a much more robust pricing environment. Companies and countries are investing much more aggressively. But we do have to consider this lead-time issue.

But to try to answer your question, I think, clearly, we are in a position now where we lack spare capacity. And the lack of spare capacity is contributing to the high price levels. We need to work very, very hard on a menu of countries that we'll be working with. I mentioned before the Azerbaijanians, the Kazakhstans, the Nigerias, the Angolas, the Libyas, the Saudis, the UAE. We need to basically keep all our cylinders operating, because it is a little bit difficult to predict exactly where we may have a supply disruption problem.

So I think the main issue and the main reason we have the high prices today is because of that low investment 10 years ago and also the fact that we've had very, very robust economic growth. I think if you had asked anyone in the energy industry a couple of years ago if oil prices had been up to \$60 a barrel would we still have 4 percent global economic growth—which is what the IMF has predicted for this year—they probably would have said no, we would have had a slowdown. But in fact, countries are adopting and adjusting to the energy prices, they're improving their efficiencies, and to some extent, they've kept the global economy moving.

So we do need to take steps. We need to take steps in the short run, the medium term, and the long run. But we also need to recognize that there are lead times and a number of the steps that we are working on today will probably benefit generations a little bit further out.

Mr. ISSA. Certainly. Just one followup, because you didn't mention Russia, and I am particularly concerned. It is estimated that Americans alone lost over \$6 billion in the hostile or manipulated takeover of Yukos. Needless to say, Americans are not going to be likely to go back into the next IPO with the level of zeal that they went in with in the past. Looking ahead as the years go on—in addition to Russia's manipulation of their natural gas and their using oil as a weapon—is that absence of investment, world-class investment capability, likely to lead to the Russians' long-term ability to exploit their resources being significantly down?

Mr. SIMONS. Well, thank you for that question. As you know, Mr. Chairman, from your experience in the region, Russia is an extremely important player in the global energy circles. It's the largest non-OPEC producer of oil, it has the largest gas reserves in the world, and it has a very important role to play as a reliable supplier to Europe and as a reliable supplier to global markets. So the way that Russia handles its energy sector is important to us. And we've raised a number of the issues that you cite this afternoon in our bilateral energy dialog with the Russians. Certainly we believe it's important that Russia undertakes the investments that they need basically to keep up their ability to play this reliable supplier role, and we're discussing with them now issues related to that.

Again, I bring up again the issue of lead times, because it may be for the next couple of years that Russia can maintain levels of oil production. But if investments start to slow now, we may see in 5, 6, 8 years that curve start to fall off. These are the kinds of issues that we have raised with the Russians. The multilateral International Energy Agency has raised a similar set of issues. We think it's important for Russia and other market players to take a long-range view of their ability to play this leadership role.

Mr. ISSA. Thank you.

Mr. Lynch.

Mr. LYNCH. Thank you, Mr. Chairman.

Mr. Secretary, since you have to leave, I am going to direct my question principally to you. We have dealt in the past on several occasions, at least four major instances of having shock, oil shock, so to speak, and both actual and threatened disruptions of oil supply here in the United States. I think the most serious occasion was probably in 1973, when we had a concerted effort in the Middle East. But it does appear to me that, given the amount of potential disruption out there—I mean, if we look at right down the list, Nigeria, Venezuela, Bolivia, Iraq, Iran—given all of the potential out there for some significant disruption—and given the fact that our margin is very tight here, between what you call spare capacity or surplus production capacity that is out there, it is very, very limited. And I understand your opinion that we need to have some short-term, some medium-term, some long-term solutions.

But when I go over what you have talked about diversification of supply and transit, enhancing the investment climate, energy ef-

iciency, supporting new technologies—those all seem to be rather longer-term solutions. Although I agree they are solutions, they are mostly longer-term.

What do we do? Let's just use Venezuela, for example. This past week the administration has said that they are going to ban arms sales to Venezuela. And President Chavez comes back and says he is going to sell 21 F-16s to Iran. And we go back and forth here. What happens if this brinksmanship goes to a point where, say, a significant supplier like Venezuela cuts off supply? What do we do?

Mr. SIMONS. Thank you, Mr. Lynch. It's a good question. We've given a lot of thought to this inside the administration. And within the sort of short-term basket of options, I think the option that we try to keep most available and most ready to use is our coordinated use of our strategic stocks. And if you recall, during hurricanes Katrina and Rita last fall, we were able to work with the 26 member nations of the International Energy Agency, and within 24 hours we agreed to release 60 million barrels of oil to meet that supply disruption that was actually caused by a natural occurrence here on U.S. shores. And we regularly, within the context of the IEA, conduct emergency response exercises. And lately, we've been bringing in the Chinese, the Indians, and other non-IEA consuming countries to participate in those exercises, to get them to understand the value of maintaining and utilizing strategic stocks. All the IEA member countries are required to keep 90 days of imports of stocks on hand. And as you know, the President has led the effort to expand the U.S. strategic petroleum reserve, which has been increased substantially during this administration, so we have a more comfortable cushion.

So for the very, very short term, we have, I think, a very agile mechanism available in the release of strategic stocks. We also have some global spare capacity—not enough, but we are working to have that get larger. And Saudi Arabia in particular has launched an aggressive investment program because, as the Saudi oil minister announced in his recent visit here, Saudi Arabia would like to see a larger cushion there as well. So a larger cushion is viewed as in the interests of the producing countries as well as the consuming countries.

And finally, we do have energy efficiency and some of the targets the President announced, in particular his initiative to expand the tax credit on hybrid vehicles, which he announced on April 26th.

So we do have some short-term elements in our tool kit. I really wouldn't mean to suggest that it's all focused on the medium and long term, but I think we have to keep the notion in mind that we do have to be moving ahead in all three areas at the same time.

Mr. LYNCH. Just a quick followup. It does concern me, though, that we dig so deep into our tool box on the first disruption. In other words, in previous instances of threatened disruption and actual disruption, we were able to replace production capacity by going to another international neighbor. In this case, you are saying that we may very well have to go to our own reserves immediately, which is sort of a backstop for defense purposes.

Mr. SIMONS. Well, I think that's correct, but at the same time, I think we showed back in September that we can move fairly quickly and that we can have a rather rapid impact on the mar-

kets. You may recall, we had a spike up to a little over \$70 and over \$3 a gallon, and within a couple of weeks we were back down by at least \$10 a barrel. So—

Mr. LYNCH. That was a 2-day storm, though.

Mr. SIMONS. That's right, but I think the fact that the markets recognized that we have the stocks, the stocks can be made available, and that the process itself is agile, it's not overly bureaucratic, I think that ought to give some comfort.

Mr. LYNCH. Thank you, Mr. Secretary.

Mr. ISSA. That is a great line of questioning, and at some future hearing we will talk about the shortage of refining capacity that went on, obviously, beyond the 2 days when the refineries flooded.

Mr. Shays.

Mr. SHAYS. Thank you very much, Mr. Chairman.

I am left with a feeling that we are totally and completely vulnerable. We are vulnerable because there is no way to increase supply noticeably in the short run and that we then empower each country—because it is just like if a bill passed by one vote, every Member can withhold their vote and stop the bill from passing. I get the feeling that there frankly is nothing that we can do in the short run. And what I would like to know is if you believe that is true. And if not true, then I would like you to tell me, in concrete ways, why it is not true.

Mr. SIMONS. Thank you, Congressman Shays. I believe I responded to Mr. Lynch that we do have the strategic stock option available. We have a small amount of surge capacity internally.

Mr. SHAYS. And explain—

Mr. SIMONS. We have efficiency.

Mr. SHAYS. How small an amount is that?

Mr. SIMONS. Probably a million to 1.5 million barrels a day.

Mr. SHAYS. So we consume 20 million barrels a day.

Mr. SIMONS. I'm sorry?

Mr. SHAYS. We consume 20 million barrels a day.

Mr. SIMONS. That's correct.

Mr. SHAYS. Just for transportation needs.

Mr. SIMONS. Well, for transportation I think we're around 13, if I'm not mistaken.

Mr. SHAYS. So it is the total—20 million is the total we consume?

Mr. SIMONS. About 22, I think, is our total consumption.

Mr. SHAYS. So we have the capability to maintain a million barrels a day for how long?

Mr. SIMONS. In terms of what we would release from our stocks?

Mr. SHAYS. Yeah, increasing.

Mr. SIMONS. Well, it's really—we have—the IEA requirement is 90 days worth of imports. We have actually about 115 days of full imports, which means that if we had a complete shut-down of imports, we lost all 13 million barrels a day, we could go for 115 days. Now, if we're looking at—

Mr. SHAYS. Just wait a second, though, just so I am sure. We have a stockpile, but we have the capacity to just bring about a million a day?

Mr. SIMONS. In terms of what the physical capacity is—

Mr. SHAYS. Yes.

Mr. SIMONS [continuing]. To evacuate the oil? Karen, Assistant Secretary Harbert, perhaps, can fill that in.

Ms. HARBERT. Just on the technical natures of the SPR itself, it has a drawdown capacity of closer to 4 million barrels a day operating at full capacity. And of course we're looking at ways to improve that.

I think you should not lose sight of one thing. You mentioned the case of Venezuela, if Venezuela were to cutoff oil to the United States, it would be going somewhere else. The world oil market would still be supplied with the same amount of oil unless Venezuela decided to make a very uneconomic decision of—

Mr. SHAYS. No, no, no. I—

Ms. HARBERT [continuing]. Not having that—

Mr. SHAYS. Hold on. Hold on. Oil is fungible. We make assumptions that people think the way we think. And there can be such anger and hate that they don't care what it does to themselves if, in the process, it really screws us. And so all I am asking is the following: The strategic reserves, we have a capacity to draw down up to 4 million a day? Is that your testimony?

Nodding heads doesn't get recorded.

Ms. HARBERT. Yes.

Mr. SHAYS. OK. And we could sustain that for how long?

Ms. HARBERT. As Secretary Simons has said, between what we hold in the SPR and what industry holds, we have the ability to replace our imports for close to 115 days.

Mr. SHAYS. OK.

I was listening and I am not hearing the same thing. So are you saying that we have the capacity for 4 million barrels for 115 days?

Mr. SIMONS. We have a capacity for 13 million barrels a day at 115 days, so 4—I'm just doing the math here—4 million barrels a day could go about three times that long, more than a year at 4 million barrels a day.

Mr. SHAYS. So our real challenge, then, is our capacity to draw it down?

Mr. SIMONS. I think that's correct, but I think you're also making the assumption that we, as the United States, would be 4 million barrels short in the event of a supply disruption.

Mr. SHAYS. No. No, I make an assumption that you could have something happen in the Persian Gulf that could impact a significant amount of supply. I do make an assumption. I make an assumption because it could happen. I don't think it is any stranger than thinking that somebody could bring down the Twin Towers. I think it is a very real possibility, and I think the honest answer to my question is we are extremely vulnerable to a drawdown in the supply of world oil and that our only protection now is our strategic oil reserves to which we have a capacity to draw, at best, 4 million barrels a day. And then my question, which will remain to let the other Members go, would be so tell me what we are doing and we will get into that with Ms. Harbert.

Thank you, Mr. Simons.

Mr. ISSA. Thank you. Great round. We are just sorry that you have to go to Holland so quickly.

Mr. Van Hollen.

Mr. VAN HOLLEN. Thank you, Mr. Chairman. Thank you for holding this hearing. Thank both the witnesses today. And I thank you for laying out some of the short-term options, middle-term options, and long-term options.

I would agree that our short-term options are pretty constrained. I do believe that it is a result of failure to have some forward-looking think as a nation many years ago. Our short-term options are constrained now because we failed to take significant steps early on. A very simple step we could have taken was to increase the CAFE standards. I think this Government—and I speak for Congress and the administration both—have been grossly negligent in not taking action much earlier to raise it above the 27.5 miles per gallon and closing the SUV loophole. There are things that we could have done that would at least limit the severity of the price hikes and reduce our reliance on foreign oil.

I also think, as we talked about, that our dependence on foreign oil puts certain constraints on our foreign policy options.

But if I can ask you, Mr. Simons, I am not sure I know—part of your title has to do with sanctions, and I don't know to what extent that fits in with our efforts with respect to Iran. But whether it does or does not, my question is this: We have been trying to work through the UN Security Council and with the permanent members, to pass some kind of resolution that would allow us to possibly impose economic sanctions against Iran. Russia and China have been resistant to doing that for a variety of reasons, but one reason may well be, at least with respect to China, that it has these oil contracts with Iran, that it is largely dependent going forward on foreign oil.

In your experience, to what extent does that dependence of China limit our ability to persuade them to support our efforts in the international arena in Iran and elsewhere?

Mr. SIMONS. Thank you, Congressman, for that question. I think it's a good one.

We have been raising for some time the issue with China of how they conduct themselves on the world stage and particularly with respect to energy. Deputy Secretary Zoellick has led this effort inside the State Department and, in a major speech he delivered last year, challenged the Chinese government to act as a responsible stakeholder in the international community. And I think this responsible stakeholder concept gets to a lot of what's behind your question.

We have been discussing in various dialogs with the Chinese what it means to be an investor in upstream oil, what responsibilities, what obligations, what approaches China ought to take, based to some extent on some of our experience over the last few years. And to some extent, China shares interests with the United States in working to improve investment climates around the world. China, for example, is a 40 percent investor in the Occidental Oil project in Ecuador, that the Ecuadoran government took steps just yesterday to cancel the contract. So we clearly enjoy a common goal with China to look for countries that hold oil reserves to take a responsible, an investor-friendly approach to their development.

So I believe we do have some common interests with China. We're both large, growing, consuming countries. We're both inter-

ested in energy efficiency. And we have common efforts under way through this Asia-Pacific Partnership for clean energy, that State and the Department of Energy lead. We also have an active energy dialog with the Chinese led by Energy Secretary Bodman. So there are a lot of areas that we need to work on with the Chinese. One of them is precisely this, to get them to think more clearly about how they conduct their upstream investments in ways that don't upset some of our key geopolitical interests.

Mr. VAN HOLLEN. Thank you. Mr. Chairman, if I could just have one quick followup. Is that all right?

Thank you for that, and I think, you know, clearly we have to work with the Chinese and our other partners. There are a number of factors, obviously, that go into whether they make decisions to support our efforts in Iran, but that is one of them.

Just a quick possibility in terms of near-term actions. As we know, Brazil has been very successful at developing a non-gasoline-based—an ethanol-based fuel, I believe. About 75 percent of their cars now run on it. We impose a tariff. I think it amounts to about 54 cents per gallon, I believe, on Brazilian ethanol. Why shouldn't we lift that tariff to make that fuel more available to try and diversify our energy sources, as you both have said is an important part of the strategy?

Mr. SIMONS. Thank you, Congressman. I think the issue of ethanol is one that we're all paying a lot more attention to in the wake of the State of the Union message, where the President clearly laid out his vision in particular of cellulosic ethanol growing and replacing a lot of our transport fuels. In fact, we have even laid out a target of 5 million barrels a day of cellulosic ethanol by the year 2025, which would be very ambitious to reach. But I think there's a huge amount of interest in ethanol in the international community as well as here domestically.

With respect to your specific question about Brazil, I believe both Secretary Bodman as well as the President have said this was something we ought to take a look at. So it's timely and I think it's something that we ought to begin to analyze and think about more seriously.

Mr. VAN HOLLEN. Is that something the administration supports, lifting the tariff?

Ms. HARBERT. Let me tell you that at the moment we get 16 percent of the corn that we have in this country being used for ethanol right now. And if we look over the long term and we look for solutions that we're trying to actually make homegrown, we need to look for ways to actually increase that, and that's why the President announced the investments we're making in cellulosic ethanol.

There are tremendous opportunities right now in the ethanol industry here in the United States. We have 35 new projects that are in various stages of investment and construction. We're encouraging those investments to take place in this country. We want to make sure that our domestic industry expands to meet the demand, both with corn and ultimately with other types of feedstock. We don't want to do anything that would hamper anybody's investment plans to expand our domestic production. So we have to keep that in mind.

Mr. VAN HOLLEN. I take that as a no, the administration does not support lifting the tariff—

Ms. HARBERT. I think that the Secretary and the President have said all options are on the table. No one is willing to take any option off the table. We have to be very mindful of the fact that we have created an environment where investments are taking place in the United States. Let us do nothing that would cause harm to those investment plans.

Mr. VAN HOLLEN. I understand that. I thought we had a sort of competition, free-market approach to things.

But thank you, Mr. Chairman.

Mr. ISSA. You are very welcome.

I just have one parting question for Secretary Simons.

You and I look, obviously, at the World Trade Organization as an important free-market, free-trade organization. Has Russia's recent use of its pipeline—some might say coercive use of its pipeline—been consistent with WTO membership? Or would you, in reverse, say that clearly their historic actions would be inappropriate were we to grant them accession to the WTO?

Mr. SIMONS. Mr. Chairman, the issue of Russia and its use of pipelines is one that we have discussed privately as well as publicly with the Russians. We think it's very important for Russia to think very carefully about its long-developed relationship as a good gas supplier to Europe and to ponder very carefully what it needs to do to keep up that reputation.

Mr. ISSA. Thank you very much. I won't assume a yes or a no at this point.

Are there others who would like to ask a second round of questions for Secretary Harbert? Chris.

Mr. SHAYS. I am unclear about the ability of a country to lock in prices and to lock in supply. And I need that explained to me. I realize that oil is fungible, but I don't understand why a country can't totally and completely lock in supply from one country. It seems to me they can.

Ms. HARBERT. Let's go back to the Venezuela example, if you will. Venezuela produces a very heavy type of oil that needs to be refined in a certain manner. We possess that capability here, so a great deal of their exports come to the United States for two reasons—proximity, which reduces cost; and our refining capacity. Now ultimately, if they decided they didn't want to ship oil to the United States, they wanted to ship it somewhere else, if the receiving country—

Mr. SHAYS. Let's stop it there. I agree with that. They are locked into us, unfortunately, and we are locked into them. But China is literally going and trying to lock up contracts. Is that correct?

Ms. HARBERT. They are on an aggressive buying spree. But the amount of their investments is not overwhelming at the moment, but they are certainly canvassing a lot of new projects.

Mr. SHAYS. Is what they are doing unique?

Ms. HARBERT. They have, certainly, the capital and the demand that's motivating them to do this. Many countries don't have the type of government-owned structure and the capital at their fingertips to do and to purchase this. However, they're not going to be able to use more than what they need. So even if they own the

asset, if it is not something that is required for their domestic economy, it will obviously be returned and put onto the global market.

Mr. SHAYS. They have the capability to lock up more than their supply and then resell it elsewhere?

Ms. HARBERT. If they were to purchase more or own more assets than what their domestic consumption would be, then they could return that to the global marketplace.

Mr. SHAYS. Sell it wherever they wanted? I mean, what I am trying to think through is I do realize that oil is fungible—that I understand. We don't have a Saudi Arabia that is holding back?

Ms. HARBERT. The spare production capacity right now is between about a million and 1.5 million barrels per day.

Mr. SHAYS. Which is basically at peak production?

Ms. HARBERT. Which means that we're operating a very razor-thin margin.

Mr. SHAYS. Yes. You know, you are parsing your words in a way that makes me uncomfortable. I am not playing a game with you. And I know you want to make sure that I totally understand. But what it seems to me is that when we are done with this hearing, an honest assessment is that the United States is very vulnerable and so is the rest of the world. But given that we consume 20 to 25 percent of the world's energy, we are going to feel the impact the most. So it seems to me, one, is we are very vulnerable in the short run; we can use our strategic reserves, which will negate it somewhat. And the second thing, it seems to me, that I would gain from this hearing is that we have countries for the first time who are really aggressively, knowing that we are at peak production, trying to make sure they are not left out by guaranteeing a supply. China is doing it in a way that I don't think we have seen done before by such a large purchaser. Is that correct?

Ms. HARBERT. Well, I think in the short term, and your conclusion that there is little we can do, we certainly, as you said, have the strategic petroleum reserve. But we also can't forget the next best source of energy is the one that we currently waste. And there's a tremendous amount that we can do in energy efficiency and conservation in the short term. I think that the—

Mr. SHAYS. I understand that, though what concerns me is that a slight reduction in energy, oil, can mean a huge increase in price. That is what I am left with. And that the market could really panic. So I am left feeling very uncomfortable about what Congress, admittedly, and the White House have done to get us into this position.

Ms. HARBERT. And I think we also have to keep in mind that there are number of producing nations out there, responsible producing nations, that understand that this high price environment is not in their interest, just the same as it's not in our interest. They don't want to see demand have a dramatic fall-off, and they understand that this could have an impact on economic growth. Saudi Arabia is a perfect example. They're trying to very rapidly increase their production ability by almost a third. Canada is doing the same thing. We've asked for, obviously, authorities over the long term to expand our production—the Arctic and other ways.

As I said in my testimony, and Mr. Simons alluded to the same thing, these are complex energy projects and the investment is

needed now to unlock those resources. Now, that may not satisfy our short-term demand, but we have to forecast that we are going to have an increased demand for energy if this type of economic growth is going to be sustained, which is in our interest. Where are we going to get the next source of supply? Working with those countries that it's in their interest to unlock those, use those revenues, and how can we actually help them do that with very good, honest capital?

Mr. SHAYS. Just one last point. I have huge regret that after September 11th the administration didn't come in and basically say we are going to have a Manhattan Project, a Marshall Plan, you know, 10-years-in-getting-to-the-moon energy plan. Although this didn't happen, I think Americans wanted that to happen. And I am waiting to see when the administration is going to say that it is a demand/supply issue and we need to slow the growth of demand significantly by better conservation, better mileage. When is the administration going to weigh in on that side of the equation to say minivans, SUVs, and trucks need to be getting the same gas mileage as cars and we need to bring cars up significantly? When is that going to happen?

Ms. HARBERT. I think we've been very, very aggressive on the energy conservation, energy efficiency front. We have tremendous incentives out there for consumers to change their behavior. We have a philosophy of incentivizing change, not mandating change.

Mr. SHAYS. Why? Why, why, why? Why would we do that? My daughter's life was saved because we mandated seat belts and air bags. It would not have happened soon enough if the market was to do it. Why is this administration only looking at the market without trying to add value to it by getting us to act sooner? Why, why, why? I don't understand it.

Ms. HARBERT. We believe in a balance, and there are certain things we're willing to mandate and certain things we're willing to leave to consumer choice. If you want to choose to buy a hybrid vehicle, you will then receive up to a \$3,400 tax benefit. We have raised CAFE standards on light trucks. We have asked for the authority to reform and revise those standards for passenger vehicles. I hope we get that authority so that we can do that. There are things that relate to safety that make sense to mandate, and we will do that at every given chance.

Things that affect consumer choice, we ought to incentivize that behavior and not force that behavior. That has worked very well in the energy markets and we think that's the way that we employ our policy here.

Mr. SHAYS. And my last word, I think you put our Nation at risk by that policy. I think you put our Nation at big risk.

Mr. ISSA. And on that note, Mr. Lynch, you have some followup time.

Mr. LYNCH. Thank you.

Madam Secretary, let me ask you, \$3 a gallon—is that one of your incentive programs to get people to use less gas? Is that something you see as a way that the market works to curtail gasoline use?

Ms. HARBERT. Well, I think the President has been very clear when he has said that he's very concerned about this high price en-

vironment. The gas prices are going to hurt people's businesses, and their wallets. He's very concerned about that. That's why just last month, he unrolled another plan, a four-point plan, of how to address this. This is not something that is unnoticed.

The problem is—and everybody wants us to have a magic bullet, a panacea—that we have that we're not willing to use. We don't have it. It takes a long time to get in this situation, as Mr. Van Hollen pointed out, and it's going to take us a long time to get out of it. We need to do everything we can in the short term to be better consumers of energy, and we need to have the foresight to make the investments now in those technologies that will help us over the long term to not be energy vulnerable.

Mr. LYNCH. I know I am preaching to the choir here, but this is so critical. I have to share Mr. Shays' level of—I would not say alarm but elevated concern. I think we are not in a crisis, but there is a looming crisis out there. And I appreciate the fact that it is in Venezuela's best interest to work with us to have agreements to sell oil.

But you are assuming that their leader is working from a rational basis, and I have not really seen that from Mr. Chavez. I know it is probably in the best interests of Iran to work with us, but in the case of President Ahmadinejad, I don't see a lot of rational thought going on there, either. So I am very concerned.

I want to read you something that—Mr. Yergin is coming up behind you, but there is a great quote in his book from a fellow named Fritz Schumacher. He talks about the nature of energy, and he says, "There is no substitute for energy. The whole edifice of modern life is built upon it. Although energy can be bought and sold like any other commodity, it is not just any other commodity but the precondition of all other commodities, a basic factor with air, water, and earth." Energy is so central to our way of life here that it concerns me greatly that we are really walking a very fine line here between having sufficient oil supplies. It almost looks like a perfect storm where the margins are so tight and we have so many wild cards out there right now in terms of Nigeria, Iran, Iraq, Venezuela, and Bolivia, that any one of them can sort of nudge us over that line.

I am just very concerned that we do not have a viable plan out there right now to deal with that. I understand we will go to the Strategic Petroleum Reserve and we will try to fill in that gap, but it just could end up a real mess over this issue in a big hurry here in the United States. People are complaining about \$3 a gallon, but I could see where this thing could go up in a big hurry. And I do not, frankly, see anything out there in the administration's plan book that is going to get those prices any lower any time fast. I see a whole lot of possibility out there that things could go the other way. We are looking at \$4 or \$5 a gallon if we have increased restriction on supply and we have continuing demand.

China alone—China alone—over the last 4 years is responsible for 40 percent of the increase in global demand. One country. I guess it is how you look at it. China has a \$1,100 a year median income right now, with over a billion people. This is a lot of potential growth there. They are responsible just in 4 years for 40 percent of global demand increase in oil. Do you see that as a short-

term problem? Or do you see that as a long-term problem for energy prices globally?

Ms. HARBERT. I see it as a reality, and it is a reality that must focus our discussions, and it must focus our investments and it must focus our policies.

If you look at what is happening with the price of gas right now, \$3, that is due to a large number of things that are happening in the United States all at one time. It is our own little mini perfect storm. We are transitioning away from MTBE to ethanol. We have a number of new regulations that are coming into effect. At the same time, we have refineries that are down for operations and maintenance that we kept up and running to meet the outages from the hurricanes. We have a confluence of factors right now that are causing a very tight environment, which hopefully will ease toward the driving season.

But you point out that we need to have options. That is what we need. We have an abundant source of coal here in this country. We need to be able to use it in a clean and sustainable manner. We need to be able to have more nuclear power. The President has a nuclear proposal on the table. We need to support the nuclear proposal.

We have aggressive investments in renewables. We are helping India and China to be more efficient consumers of energy. It is in our interest if they consume less energy. We need to help them be more energy efficient. We need to be more energy efficient. We need to use solar. We need to use wind. There are all kinds of things that we have to keep on the table and we have to do the right thing by making those investments now so those technologies can actually be commercially viable in the medium term.

Mr. LYNCH. I just wanted you to answer that last question. Do you see the growth in India and China as a short-term problem? Because that governs the nature of our response. If we see it as a short-term problem, we deal with it in one way. If we see it as a long-term problem, then we deal with it in another way. You are the Secretary. You are here testifying, and I am just asking you. Do you view that problem as a short-term or a long-term problem? I know it is reality. But are you dealing with it?

Ms. HARBERT. We certainly do not see the growth abating, and we certainly hope to see global economic growth sustained. Is that an opportunity or is it a challenge? Is it a problem? As you said, it is a reality, and we have to make those adjustments.

We wrote a report that was asked for by Congress in the Energy Policy Act by Congressman Pombo about whether China's appetite is a threat, and we wrote a very lengthy report about that does a very detailed analysis, and we will be happy to send a copy to your office.

Mr. LYNCH. I think I have it here. Thank you, Madam Secretary.

Mr. Chairman, also, at the beginning of this hearing, I was supposed to ask that this report be submitted on the record. I would ask unanimous consent—

Mr. ISSA. Without objection, it will be included along with other pertinent information we want to include.

Mr. LYNCH. OK. This is the Pacific Institute Research for People on the Planet, testimony of Peter Glike. Thank you.

Mr. ISSA. Mr. Van Hollen, you had one followup question?

Mr. VAN HOLLEN. Thank you, Mr. Chairman. Thank you, Madam Secretary, for your testimony. I have one question on CAFE standards and then one other brief question.

You mentioned that the administration is seeking authority to increase CAFE standards, but just for the record, I think it is important to be clear that the administration has proposed sort of a segmented approach to CAFE standards so that within each vehicle class you would have different standards. Would you acknowledge that the administration currently has the authority within the existing framework to increase the CAFE standards subject to a congressional veto?

Ms. HARBERT. We have raised CAFE standards for light trucks. We do not have the authority to raise CAFE standards for passenger vehicles. We have asked for the authority to do that in conjunction with a way to reform the system, which would allow us to do it on a fleet-based system, a footprint-based system, just like we do with light trucks, and we do not have that authority.

Mr. VAN HOLLEN. Well, my understanding is that you do have authority to do a lot more than you have done subject to congressional veto. We will check that.

Let me ask you about Iran. We face a very tight oil market today, obviously, and you have talked about ways to try and loosen it up so it is not quite so tight, both on the supply side but also diversification of sources. Looking at the situation we are in today and acknowledging that if Iran was to cut back on its oil supply, it would obviously have an economic impact on Iran. I believe about 80 percent of its exports are to the oil market, and it also imports a fair amount of gasoline itself, refined products.

But putting that aside, if they decided to use oil as a political weapon—and we have talked today about other countries that have used oil as a political weapon—and if today they were to significantly reduce their exports of oil, what impact would you see on the world oil markets and on gasoline prices at the pump here in the United States?

Ms. HARBERT. You know, the United States is a member of the International Energy Agency, which is a 26-member body, which in the case of a severe supply disruption exercises a consolidated approach to meeting the supply disruption. When you take all of the stocks that all the countries hold together within the IEA, we have the ability to meet a complete shut-off of Iranian oil for over 4 years. So if that was necessary, that would actually have to be employed.

Mr. VAN HOLLEN. Let me just make sure I understand your answer. You are telling me that if the Iranians today were to cutoff all exports of oil, there would be no increase of the price at the pump here in the United States.

Ms. HARBERT. No, the oil market is very volatile, and there would certainly be some sort of price reaction. What I am talking about is that we have an ability to respond to a supply disruption in Iran. The markets are tight. There would certainly be a price reaction. I cannot forecast how much that would be.

Mr. VAN HOLLEN. OK. I mean, you suggested that it would be fairly minimal, I thought. Is that what you are suggesting?

Ms. HARBERT. The industrialized nations—

Mr. VAN HOLLEN. You said we are prepared for a total cutoff of exports.

Ms. HARBERT. We have the ability to replace the amount of oil that would be taken off the market for a significant period of time if that is the position that Iran chose to take. We certainly do not think that would be responsible. We certainly do not think that is to the benefit of the Iranian citizens. We do not think it is to the benefit of the energy market.

Mr. VAN HOLLEN. No, I understand, but putting all that aside, I am just—

Ms. HARBERT. But the reason we have these oil stocks is to deal with severe supply disruptions.

Mr. VAN HOLLEN. OK. Thank you, Mr. Chairman.

Mr. ISSA. Thank you, and I will do the quick wrap-up here. You have been very, very kind with your time.

I want to leave you with a couple of questions to respond to in writing, if you would, because you have been very generous with your time. We touched base on the China contracts, and I think this committee is interested in broadly knowing: Is what they are doing, potentially what we should all be doing? And I will pose a rhetorical question to you. If the United States and other consuming nations were to guarantee, hypothetically, 80 percent of their anticipated exports at a price which used to be considered at the high end of good. Would \$35 a barrel, in fact, be a long-term impetus to investment and, as a result, production to meet those demands?

Now, 80 percent is not magical; \$35 a barrel is not magical. If I had said \$35 a barrel when I first took the Chair here, I would have been drummed out of town as a friend of OPEC. Today, at half of the prevailing rate, it seems like a good deal.

You are welcome to interject in your answer other base suggestions for how much the U.S. Government or an entity might choose to commit full faith to, because the United States does have the ability to commit the full faith and credit of the United States, even though it is not a country like China.

You are certainly welcome to suggest what the correct incentive would be. I ask this because this Congress has had a long history of sometimes a controversial, sometimes a mutually agreed basis in various tax incentives that effectively create bases for production.

In my home State of California, we obviously have the old Bakersfield and other oil fields that, if they were not bases, they would have had to shut down. As a matter of fact, at \$9 to \$18 a barrel, they were living on cogeneration and somebody agreeing to pay for the electricity, which did not always get paid for, but that was what made them viable oil wells. Today, I imagine the people that bought those things used from the big oil companies look like geniuses. So I would like you to respond to that.

Last, although we talked about around 100 million barrels a day of world consumption; about 2 million barrels of potential surge capability; and 20 million barrels of U.S. production. When we dealt with the delta between the 20 million and the 13 million used for mobile fuels, we did not deal with where the viable alternatives are that would allow us to reduce all or part of that 7 million barrels

a day. And I would like you to answer, to the best of your ability, where you believe there should be investments in alternative energy sources; whether it is clean coal—I would like you to avoid natural gas, if you don't mind, but nuclear, wind, solar, any of the other non-petrochemicals that are not in short supply, and how we would potentially reduce by a million, 2 million, up to the 7 million our non-transportation use. I think that would be very helpful for the committee.

And with that, I will have to tell you those are the only two questions that this dais did not ask the panel. If you have any closing remarks, otherwise, we are finished.

Ms. HARBERT. Mr. Chairman, thank you very much for the opportunity. I think we need to continue to have more dialog about what is a very important issue. This is clearly on the minds of the American people. It is on the mind of the President. We are doing everything we can with what limited ability we have in the short term, but we aggressively have a long-term strategy that we believe, put in place now, will secure ourselves and have the type of access to energy resources that our economy demands over the long term.

Thank you very much for this opportunity, and I look forward to further exchanges.

Mr. ISSA. Thank you, Madam Secretary, and it has been a very good exchange, and we look forward to having you back.

I am going to sponsor about just a 2-minute quick break for the next panel to come up.

[Recess.]

Mr. ISSA. We will come back to order, a quorum still being present.

I would like to introduce the second panel, which is an extremely impressive group. For everyone's well-being, I hope that we have exhausted some of our questions on the first panel, and I appreciate your remaining patiently through a long dialog.

Dr. Daniel Yergin, chairman of Cambridge Energy Research Associates, who has testified many times before Congress, and we appreciate your being back.

Ambassador Keith Smith, Senior Associate, Center for Strategic and International Studies.

And Mr. David Goldwyn of Goldwyn International Strategies.

I look forward to hearing from you today, and since I did not catch you the first time, I have to ask you to please stand for the oath.

[Witnesses sworn.]

Mr. ISSA. For the record, all nodded yes.

Having made our opening statements and having trimmed down the dais a little bit, I would like to open at this time with Dr. Daniel Yergin, if you would, please.

STATEMENTS OF DANIEL YERGIN, CHAIRMAN, CAMBRIDGE ENERGY RESEARCH ASSOCIATES; KEITH C. SMITH, SENIOR ASSOCIATE, EUROPE PROGRAM, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES; AND DAVID L. GOLDWYN, PRESIDENT, GOLDWYN INTERNATIONAL STRATEGIES LOW-INCOME COUNTRIES

STATEMENT OF DANIEL YERGIN

Mr. YERGIN. Mr. Chairman, members of the committee, I too am very honored to be here to have the chance to join this discussion. As I listened to the previous session, I was very struck by the sense of urgency in the questions and the issues as you frame them and remind us that we really are in a somewhat precarious time. It is very important in such circumstances to try and connect the dots, and I would like to try and connect a few of the dots in my brief remarks today.

It is clear from what you were talking about before that energy security today is not an abstract issue. It is a very real set of considerations. And it is also clear, whether you are talking about the price at the pump or you are talking about energy security, we are really talking about America's position in the world. It is important to see these issues in a global context.

Energy security has repeatedly been an issue of great and paramount importance to this Nation. It is once again today. I think it needs to be rethought from what has been the set of ideas that developed and policies and procedures in 1930's, which are very sound and are part of the foundation. These are not enough today, and we need to include new factors.

As part of connecting the dots to see that energy security needs to be seen within the context of our overall relations with nations and how they interact with each other, it is really about alliances and our friends and working with other nations and understanding their points of view. I think that was very evident, Mr. Chairman, in the report that was prepared for you and Mr. Davis, which I think highlights it. We have a study coming out tomorrow called "The New Paradigm for Energy Security" that we did with the World Economic Forum that tries to outline some of those things.

We have already heard in the first session the number of issues that have driven this focus on energy security from the tight market to the politics. I think something that has become clear only in the last 6 to 12 months is in addition to everything else is this rebirth of a 1970's style resource nationalism. This is riding on the crest both of high prices and political calculation, and specifically, as you have already noted in the previous session, the rising tensions with Iran.

Of course, energy security is not limited to oil. We have had power blackouts on the West Coast. We have had them on the East Coast. We have to pay attention to what that message is telling us. In terms of natural gas, we are about to become part of a world market, which is something that is new for the United States, new for North America.

We certainly see a new range of vulnerabilities. Osama bin Laden has talked about attacking the hinges of the world economy, and by that he means the infrastructures, including energy. We see

energy coming from new areas that need to develop security systems. If we look back at what happened last autumn with the two hurricanes, we see that we really had the first integrated energy shock we have ever had in which oil, natural gas, refineries, processing plants, electricity were all down, and I think drove home the way electricity is fundamental to the whole energy system.

We know the list of events since the beginning of the year that have focused our attention on energy security, the mounting sense of it. As I said before, the principles that have governed energy security have been wise, beginning with diversification, but we need a sense of energy security that reflects the rapid evolution of the global energy trade, supply chain vulnerabilities, terrorism, and, as you have been talking the first session, the integration of these major new economies.

I want to emphasize again and again, because it strikes me that it gets left out of the discussion, that so much of how we manage this problem will depend upon how we interact with other countries. We have to see it in the overall context.

So let me briefly try and answer four questions.

One, what do we mean in energy security for the 21st century? And in the testimony, I try and lay out 10 principles. They are really there for discussion. You might want to change them and think about them, but I urge you to at least reflect upon them: diversification; the need for a security margin; realizing that there really is only one global oil market; the importance of information; a subject you have already talked about, China and then India and Brazil and bringing them into the energy security system.

I think it is very important that we understand the point of view of those countries and that we seek to work with them collaboratively and we keep things in perspective. China's oil production is 400,000 barrels a day, which is one-tenth of the production of one super major oil company. I don't think China is going to be able to preempt us in any serious way, and I think it would be more worrisome to us were the Chinese not investing in developing new resources with the way their demand is growing.

I have mentioned the importance of protecting infrastructure and the energy supply chain. That was not something that was really thought about when the current energy system was created in the 1970's.

I think one of the lessons to me—and it is a very strong lesson, which Mr. Lynch cited “The Prize”—is the importance of flexible markets, that markets can respond and help mitigate crises. Everybody, even if they were born after the 1970's, remembers the gas lines, it seems. But those gas lines were to a large degree self-inflicted because of allocations and controls.

Energy efficiency and conservation, as you all have emphasized, is terrifically important. We are 50 percent more efficient as a country, and we need to keep going on that.

This question of the investment climate ought to be a very big question at the G-8 meeting—access, openness, where to encourage investment, I think that is critical.

And finally, as we know, development and deployment of new technologies.

The second question: Why have oil prices doubled during the past 2 years? And I think what I would say is that through 2004, we had a demand shock. That demand shock has given way to a supply shock. We call it a slow-motion supply shock, an aggregate disruption, as you have already noted in these hearings, of about 2 million barrels a day.

The third question is: Are we running out? And my answer to that is that this is actually the fifth time the world has run out of oil. The first time was in the 1880's, and the last time was in the 1970's, and production increased 60 percent.

But we are moving—and the geographic imagery has gone from the oil mountain to the peak, but, in fact, we believe that the right way to see it is really as what we call a plateau, which is farther out. There will be a much larger role of technology, of non-conventional energy resources, and that the real problems right now and in the years ahead are not below ground. The real problems are, as you have already described in the first session, aboveground.

And, finally, I will just say a word about the need to update the way we see reserves and evaluate them. With the G-8 Summit approaching, one of the things that really struck me, as you talk in different countries, you find that everybody is more or less in favor of energy security. But it means very different things to different countries, and that might be something we can talk about. I think for a China or an India it is really about energy that they need to grow their economies to deal with social turbulence. It is not the same sort of issue.

Russia's energy security, a lot of that means controlling the commanding heights of the energy industries and controlling the pipelines.

United States, we talk about energy independence, but as we know, we have gone from a third to 60 percent of our oil being imported, and we are going to be importing a lot of gas.

We are at a historic juncture. This great surplus of extra capacity that was a legacy of the 1980's is, at least for the time being, gone. The term "spare capacity" was used in the first session, and it is on that narrow band of spare capacity that so much of the drama of the world oil markets is playing out today.

As I said, we like to talk about energy as though we are an island. We are not. We import more oil than any other nation consumes. And as we have heard, the balance between supply and demand is very tight. And as I pointed out, we have the aggregate disruption. Those numbers have already been quoted with Venezuela, Iraq, Nigeria, and the Gulf of Mexico.

If you say what has made the difference in the last 3 months, one is the disruption in Nigeria and the uncertainty about what is going to happen. And second is the ratcheting up of tension about Iran. Iran was not in the oil price at the end of last year. It is today, or at least partly.

Third—and that is easing—is the too rapid switch from MTBE to ethanol; 270 days was too quick to do it, and we had logistical problems.

We have talked about Iran. We should just note that 18 million barrels a day of supply passed through the Strait of Hormuz.

I mentioned earlier that we are going to widen the definition of what we mean by oil. Oil sands from Canada, we see the numbers from Canada going up, gas to liquids. It is also no secret that ethanol is going to be more important in the United States than one might have assumed even a year ago.

But I think there, too, it is important to keep it in perspective. We hear that half of Brazil's motor fuel is ethanol, but that is equivalent to 3 percent of our gasoline supply. So what we have to keep in mind is the scale of our more than 20 million barrels a day of consumption. And while biology cellulosic ethanol may have a major impact, it is probably several years away. It is not something that is going to give us a quick fix.

The last topic is that the whole system about how we know how much oil there is, the system of proven disclosures by the SEC really needs to be modernized. It is unbelievable. It is still based upon 1965 definitions of reserves, proven reserves, and as late as the 1970's, when the SEC put its system in place, the frontier for deep-water was 600 feet; now it is 12,000 feet. Markets have changed dramatically. We are much more integrated. The kind of projects have changed. The complexity of projects has changed. People are spending billions of dollars on projects where the reserves cannot be recognized, and so this really gives misleading information to consumers, to investors, and about energy security.

I would just say that the system that is in place now was put in place before there were cell phones or personal computers, let alone the Internet. It is as though you are telling oil companies today that you have to use invasive surgery, not CAT scans, or that financial reports to the SEC should be filed only using typewriters and carbon paper. We need to modernize that system to have a better understanding.

So to tie this all together, as really the sense of this hearing and what you have defined, energy security is going to be one of the major challenges for U.S. foreign policy for some years to come—not only for years but for months, and in the immediate weeks. It really is front and center for us.

Part of that challenge will be anticipating and assessing the what-ifs, connecting the dots, thinking not only the unthinkable but the semi-thinkable. And that requires not only looking around the corner, but also beyond the ups and downs of cycles to both the reality of an ever more complex and integrated global energy system, and certainly to the relations among the countries that participate in it.

Thank you.

[The prepared statement of Mr. Yergin follows:]

**STATEMENT OF DANIEL YERGIN
CHAIRMAN
CAMBRIDGE ENERGY RESEARCH ASSOCIATES**

Before the

**HOUSE GOVERNMENT REFORM SUBCOMMITTEE ON ENERGY
AND RESOURCES**

And the

**SUBCOMMITTEE ON NATIONAL SECURITY, EMERGING
THREATS, AND INTERNATIONAL RELATIONS**

U.S. HOUSE OF REPRESENTATIVES

May 16, 2006

I am very pleased to have the opportunity to address the House Government Reform Subcommittee on Energy and Resources and the Subcommittee on National Security, Emerging Threats and International Relations. The range of risks and threats extend from prices at the pump and the direct impacts of higher prices to our energy security and the position of the United States in the world. The mandate for this hearing makes clear a fundamental reality—whether one is trying to understand what is happening at the gasoline pump or to understand the new dimensions of energy security, we must see matters in a global context.

Energy security has repeatedly emerged as an issue of great importance. It is certainly so today. But the subject now needs to be rethought, for what has been the paradigm of energy security for the past three decades is too limited and must be expanded to include many new factors. Moreover, it must be recognized that energy security does not stand by itself but is lodged in the larger relations among nations and how they interact with one another. In other words, it cannot be separated from our relations with other countries, as is evident whether we look towards Asia, Latin America, Eurasia, and of course the Middle East.¹

The renewed focus on energy security is driven in part by an exceedingly tight oil market and by high oil prices, which have doubled over the past three years. But it is also fueled by the threat of terrorism, instability in some exporting nations, a nationalist backlash, fears of a scramble for supplies, geopolitical rivalries, and countries' fundamental need for energy to power their economic growth. The rebirth of 1970s-style resource nationalism, riding on the crest of high prices and political calculation, and rising tensions with Iran are intensifying the spotlight on energy security.

In the background—but not too far back—is renewed anxiety over whether there will be sufficient resources to meet the world's energy requirements in the decades ahead.

Concerns over energy security are not limited to oil. Power blackouts on both the East and West Coasts of the United States and the impact of last year's hurricanes on the Gulf Coast demonstrate the importance of electric power in the energy security calculus. When it comes to natural gas, rising demand and constrained supplies mean that North America can no longer be self-reliant, and so the United States is joining the new global market in natural gas that will link countries, continents, and prices together in an unprecedented way.

¹ See the World Economic Forum and CERA joint report, *The New Energy Security Paradigm*. This study, scheduled for release on May 17, 2006, analyzes energy security issues in the context of the complex integration of economies, energy infrastructure, climate change and technological innovation, and political alliances. These questions are also addressed in Daniel Yergin, "Ensuring Energy Security," *Foreign Affairs*, March-April 2006.

At the same time, a new range of vulnerabilities has become more evident. Al Qaeda has threatened to attack what Osama bin Laden calls the “hinges” of the world’s economy, that is, its critical infrastructure—of which energy is among the most crucial elements. The world will increasingly depend on new sources of supply from places where security systems are still being developed, such as the oil and natural gas fields offshore of West Africa and in the Caspian Sea. And the vulnerabilities are not limited to threats of terrorism, political turmoil, armed conflict, and piracy. In August and September 2005, Hurricanes Katrina and Rita delivered the world’s first integrated energy shock, simultaneously disrupting flows of oil, natural gas, and electric power—underscoring, as noted above, how fundamental electric power is to the functioning of the entire energy supply system. Moreover, energy security also needs to be integrated with environmental questions, particularly, on a global basis, climate change.

Events since the beginning of the year have underlined the significance of the issue. The Russian-Ukrainian natural gas dispute temporarily cut supplies to Europe, crystallizing European concerns over the appropriate level of dependence on Russian gas. Rising tensions over Tehran’s nuclear program have brought threats from Iran, the second-largest OPEC producer, to “unleash an oil crisis” and raised fear of new disruptions. Concerted attacks against oil facilities in the Nigerian Delta region have substantially reduced exports from Nigeria, which is a major supplier to the United States. Gas and electricity flows into the country of Georgia were interrupted by attacks on infrastructure. Venezuela, one of the major suppliers to the United States, is squeezing out foreign investment. And Bolivia, bolstered by Venezuela, has completely reversed its progress towards integration in the world economy by, effectively nationalizing foreign investment in its natural gas sector.

Diversification has been the key to energy security for almost a century. That remains true. But a wider approach is now required that takes into account the rapid evolution of the global energy trade, supply-chain vulnerabilities, terrorism, and the integration of major new economies into the world market.

We must also keep in mind that energy security indeed exists in a larger framework. In a world of increasing interdependence, energy security will depend much on how countries manage their relations with one another, whether bilaterally or within multilateral frameworks. That is why energy security will be one of the main challenges for US foreign policy in the years ahead and why we have to see it in the context of our overall relations with other nations.

I hope in this hearing to answer four questions:

1. What does the concept mean for the 21st century and how does it need to be updated from traditional definitions? I would like to offer these principles:
 - Diversification of supply is the starting point
 - Resilience, a “security margin” in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions
 - Recognizing the reality of integration—there is only one global oil market
 - The importance of quality information
 - The need to engage such countries as China, India, and Brazil in the energy security system. We need to understand their pressures, keep both the numbers and how the market works in perspective, and work with them collaboratively
 - Expanding energy security to include the infrastructure and the entire energy supply chain
 - Recognizing flexible markets as a source of security
 - Renewing the commitment to energy efficiency and conservation
 - Strengthening the investment climate itself (a highly appropriate theme for the G-8 Summit in July)
 - Development and deployment of new technologies
2. Why have oil prices nearly doubled during the past two years? What are the risks that those prices are conveying? I would like to put what is happening at the pump in a global context. Although there is no actual supply shortage, the world oil market is very tight, owing not only to rising demand, but also to a “slow motion supply shock”—what we have called an “aggregate disruption” of about two million barrels per day. The result is that the “security margin” has greatly narrowed.
3. What are current prices telling us about the world’s future oil supply? Oil is a non-renewable resource, but we do not believe the world is imminently facing the specter of running out. Or, to put it differently, this current period is the fifth time the world has supposedly run out of oil. The first time was in the 1880s and the last time before this time, in the 1970s—since which world oil production has increased 60 percent. The prime risks today are not lack of resources underground, but what is happening above ground... politics, geopolitics, and, as already noted, in rebirth in some parts of the world of 1970s style resource nationalism, fueled by high prices.

4. Finally, I want to comment about the urgent need to update the SEC-mandated definition of proved reserves, which are still based on the technology of the late 1970s and, as a result, provides a distorted view of our reserve base. That serves neither the interests of consumers, nor investors, nor that of energy security.

Energy Security Front and Center and the Security Premium

Energy security is front and center with the approaching G-8 Summit and the discussions and attention to the question around the world. Yet it is important to understand that the meaning of “energy security” can vary widely among countries. In the developed world the usual definition of energy security, at least the starting point, is simply the availability of sufficient supplies at affordable prices.

Yet different countries interpret what the concept means for them differently. Energy-exporting countries focus on maintaining the “security of demand” for their exports, which after all generate the overwhelming share of their government revenues. For Russia, the aim is to reassert state control over the “commanding heights”—“strategic resources”—and gain primacy over the main pipelines and market channels through which it ships its hydrocarbons to international markets. The concern for developing countries is how changes in energy prices affect their balance of payments. For China and India, energy security now lies in their ability to rapidly adjust to their new dependence on global markets, which represents a major shift away from their former commitments to self-sufficiency. For Japan, it means offsetting its stark scarcity of domestic resources through diversification, trade, and investment. In Europe, the major debate centers on how to manage dependence on imported natural gas—and in most countries, aside from France and Finland, whether to build new nuclear power plants and perhaps to return to (clean) coal. And the United States must face the uncomfortable fact that its goal of “energy independence”—a phrase that has become a mantra since it was first articulated by Richard Nixon four weeks after the 1973 embargo was put in place—is increasingly at odds with reality.

In approaching these questions, we need to recognize that we are at a historic juncture. After a quarter century, the great cushion of surplus oil production capacity that was created by the energy turbulence of the 1970s and early 1980s has been largely spent—at least for the time being. It is on that relatively narrow band of “spare capacity” that so much of the drama in world oil markets is playing out.

Sometimes, the debate about energy and energy prices seems to assume that the United States is an island—albeit a very large continental island.

That, of course, is not the case. In the 1970s we imported a third of our oil; today, it is on the order of 60 percent. Our oil imports are larger than the total oil consumption of any other country in the world. What this means is that we are highly integrated into the global marketplace—and are affected by what happens in the market.

Today, the balance between supply and demand in the world oil market is very tight. Part of the reason is the surge in economic growth in both developed and developing countries—of which the growth of China and, to a lesser regard, India provide the most noteworthy examples. But the demand surge turned into slower growth in 2005 and the data is still preliminary for 2006.

Meanwhile, the focus of the market has shifted from demand to supply. We are currently experiencing that slow motion supply shock, the aggregate disruption of more than two million barrels per day, to which I referred before.

What explains the sharp rise in oil prices over the past three months? Two of the three reasons go right to the rising concerns over energy security.

The first is the real disruption of a significant part of Nigeria's oil production owing to an insurgency in Nigeria's Delta region—and the threat of further disruption. This means the loss of a high quality light sweet oil particularly well-suited for making gasoline.

The second is the ratcheting up of tensions over Iran's nuclear program with a fear of a disruption of Iran's 2.5 mbd of exports. Some Iranian spokesmen threaten to unleash an "oil crisis" while others seek to separate oil from atoms. But in a market this tight, the risk of escalation is enough to send crude oil prices up, especially given the potential impact on production and export not only from Iran but other countries and on transit out of the Persian Gulf.

The third factor, more transitory, is at home—the rapid switchover from MTBE to ethanol on the East Coast and in Texas has added pressure to what has been for a number of years the most difficult period in the gasoline market—the spring makeover of gasoline from winter to summer blends. This year's switchover has been made more arduous by the consequences of last year's hurricanes. Refineries need downtime for maintenance and to prepare for the switch to ultra-low sulfur diesel, a new requirement beginning this year. The shifting from MTBE to ethanol has required changes all along the supply chain—different suppliers, different transportation (trucks and rail cars instead of pipelines) and different locations for blending (terminals instead of refineries.) Normally a change over like this would be done in a couple of years. As it turned out, 270 days is a very compressed time for conversion in the face of other challenges, including the unexpected fury of the hurricanes that occurred after the passage of the energy bill.

We would expect that the transition will be complete by the time most Americans begin their serious summer driving.

But there is little reason to think that the tension over Iran's nuclear program will abate, and much uncertainty remains over what will happen in Nigeria. So we must look to the impact of fundamentals, for price moderation, in the build-up of supplies from elsewhere, the relatively high level of crude oil inventories, and the demand response to higher prices.

The Demand Surge

Energy has now become a significant issue in U.S. relations with China and, to a lesser degree, with India. The last decade has witnessed a substantial increase in the world's demand for oil, primarily because of the dramatic economic growth in developing countries, in particular China and India. As late as 1993, China was self-sufficient in oil. Since then, its GDP has almost tripled and its demand for oil has more than doubled. Today, China imports 3 million barrels of oil per day, which accounts for almost half of its total consumption. China's share of the world oil market is about 8 percent, but its share of total growth in demand since 2000 has been 30 percent.

The impact of growth in China, India, and elsewhere on the global demand for energy has been far-reaching. In the 1970s, North America consumed twice as much oil as Asia. In 2004 and 2005, for the first time ever, Asia's oil consumption exceeded North America's. The trend will continue: half of the total growth in oil consumption in the next 15 years will come from Asia, according to CERA's projections.

However, Asia's growing impact became widely apparent only in 2004, when the best global economic performance in a generation translated into a "demand shock"—that is, unexpected surge in petroleum consumption that was more than double the annual average growth rates of the preceding decade. China's demand in 2004 rose by an extraordinary 16 percent compared to 2003, driven partly by electricity bottlenecks that led to a sharp rise in oil use for improvised electric generation. US consumption also grew strongly in 2004, as did that of other countries. The result was the tightest oil market in three decades (except for the first couple of months after Saddam's invasion of Kuwait in 1990).

The torrid pace of demand in 2004 did not continue into 2005. Last year China's demand grew by 1.7 percent—compared to the 16 percent in 2004—and world demand grew just 1 percent.

Refining Capacity

Refining capacity is a major constraint on supply, because there is a significant mismatch between the refined product requirements of the world's consumers and refineries' capabilities. Although often presented solely as a US problem, inadequate refining capacity is in fact a global phenomenon. The biggest growth in demand worldwide has been for what are called "middle distillates": diesel, jet fuel, and heating oil. Diesel is a favorite fuel of European motorists, half of whom now buy diesel cars, and it is increasingly used to power economic growth in Asia, where it is utilized not just for transportation but also to generate electricity. But the global refining system does not have enough so-called deep conversion capacity to turn heavier crudes into middle distillates. This shortfall in capacity has created additional demand for the lighter grades of crude.

Nevertheless, refining is a high-focus issue in the United States. The number of U.S. refineries has gone down by about half since the 1970s. Many of these were the small “tea kettle” refineries that were intended to take advantage of the “small refiner bias” under the 1970s control system.

Yet what truly counts is not the number of refineries but the capacity—the number of barrels that can be produced. Here we see a different trend. Overall, capacity went down until the early 1990s and then began to increase again with larger, more efficient refineries. This does not reflect the building of new refineries, which has been hampered by costs, siting, and permitting. Rather it is expansion and upgrading of existing refineries and what is called “refinery creep”—which when added up has taken some big steps. Capacity is up 15 percent—2.2 mbd—since then. This 2.2 mbd expansion in capacity is the equivalent of adding 10 new good-sized refineries over the last dozen years. New refining capacity and/or refineries will be required in the years ahead. The timing and balance will be determined not only by economics, but by the physical capacity at facilities and the ability to permit new facilities.

There is unease, of course, about dependence on imported refined products and possible threats to the supply chain. At this point, half of total refined products imports come from Western Europe, Canada, and the Caribbean (excluding Venezuela). Western Europe has been the largest source because it has excess gasoline production.

Slow Motion Supply Shock: the Aggregate Disruption

The security issue has been brought to the fore by what is happening in terms of supply. What has now become clear in 2006 is that we are experiencing a slow motion supply shock—an aggregate disruption that has averaged around 2 million barrels per day this year.

Nigeria	550,000 bd
Venezuela	400,000 bd
Iraq	900,000 bd
US Gulf	325,000 bd

A good part of Gulf of Mexico production is slated to soon start up again (as is hurricane season.) In the meantime, other transitory interruptions elsewhere in the world can, at least for short periods, take additional oil off the market.

These disruptions have, with the strength of demand, resulted in a very tight oil market and one that is more vulnerable to any further problems. Market psychology—anticipation of risk—becomes more powerful, translating into a scarcity or risk premium. We currently estimate that premium at \$10 -15 a barrel. At the present time, the most important contributors to the premium are the unrest in Nigeria, and uncertainty about what will happen there, and the ratcheting up of tension over Iran’s nuclear progress and the fear that in one way or another, Iran’s 2.5 mbd of exports may be disrupted, with additional collateral effects. Without these circumstance, we would not be seeing oil over \$70 per barrel. Or worrying about \$80 or \$90 oil.

Iran's announcement on April 11 that it had enriched uranium opened a new, more dangerous phase in Iran's relationship with the international ahead. The months ahead will see much more focus on Iran's role in global oil markets and potential impacts in terms of energy security and how to manage any disruptions. In this market, loss of any significant supply—including that from Iran—would be of very serious concern. In this market, loss of any significant supply—including that from Iran—would be of very serious concern. About 18 mbd of supply pass through the Strait of Hormuz. At the same time, oil exports are crucial to Iran's economy, providing in the fiscal year that ended March 21 at current prices about \$45bn—which is about 80 percent of total export earnings. Iran also imports close to 40 percent of its gasoline. It is not at all clear, however, what coordination exists among the various decision-makers and interests in Iran.

Growing Resource Base—and the “Undulating Plateau”

As always happens when prices are high and supplies are uncertain, there is much discussion about whether the world is going to run out of oil. In the 1970s, the term was “the oil mountain,” as in “the world was about to fall off the oil mountain.” The geographic imagery has become more elevated—today it is “peak.” Our research leads us to conclude that “peak” is a misleading image. Based upon our analysis of oil fields and investment programs, and drawing on the databases of our parent company IHS, which has the largest collection of data on world production, we see a substantial buildup in world oil production capacity for a number of years. A more relevant description is “plateau” in production capacity that might be reached closer to the middle of the century.

We currently project worldwide liquids production capacity (not actual production) to grow from 88.7 mbd in 2006 to 105.3 mbd in 2015. This involves a growing role for non-traditional liquids—oil sands, gas-to-liquids, ultra deepwater. This represents a widening of the definition of oil. Such a development accords with the history of the industry, in which non-conventional technologies are introduced and, over time, become conventional.

The risks are not below ground, in terms of shortage of resources, but above ground—political decisions by governments, conflict, natural disaster, and price volatility. Rising costs and shortage of professional talent are also of concern. Our CERA Capital Costs Index indicates that offshore costs are up 68% since 2000—and 14% just in the last half-year.

After 2010, growth in capacity will be concentrated in what we call the “O-15”—that is, the “Oil 15”—which will likely cause increased foreign policy concern.

I want to emphasize that this outlook does not detract at all from the need to develop new technologies, new energy options, alternatives, and new unconventional production. It does argue strongly for a need to integrate energy and foreign policy in a considered way—a point I will develop later.

The widening of the definition of oil is taking another form as well—with the growing role of ethanol in the gasoline pool. The incentives are strong, as is the drive for diversification, and markets are responding. All that will translate into growing role for ethanol. Scale, however, has to be kept in mind. Half of Brazil's motor fuel may be ethanol, as is often pointed out, but those volumes are equivalent to less than three percent of U.S. gasoline consumption. The picture is changing, and the science will continue to change. But, at this point, it appears that to get to world-scale volumes of ethanol—equivalent, say, to our imports from one of the major Western Hemisphere exporting countries—will require significant advances in the production of cellulosic ethanol. Whatever the longer-term impact of biology on our energy supplies, there is no obvious quick fix to the energy security questions we see today.

Modernizing Reserve Disclosure

I have spoken about the need to understand future resources and to expand our concepts of energy security. Let me mention one area in which the US government could address both. The system for reserves disclosure mandated by the Securities and Exchange Commission was established by the US Congress in the mid-1970s, after the first Oil Shock, for reasons of energy security—to answer the questions “how much oil is actually there?”

The “1978 System” at the time it was implemented reflected the best practices of that time. It was based upon the 1965 definition of The Society of Petroleum Engineers (SPE) and discussions in the 1970s. Since then, the SPE has revised its definition three times and is in the process of doing so again. However, the SEC's system still relies on the definition of 1965 and the practices of the 1970s. Thus registrants are basically restricted to the technology of those years in reporting reserves—which has led to a growing divergence between what is reported under the SEC's 1978 system and how companies, using more modern technologies and tools, assess their own reserve position, on which they base investments of hundreds of million of dollars—and, now more frequently, several billion dollars.

The changes have been enormous since the 1970s. Back then there was no digital revolution, and the frontier for offshore developments was 600 feet of water; today it is 12,000 feet. The rules do not recognize the vast technical progress over the last 30 years, and as a result, standard techniques used today by companies to set multi-billion dollar investment programs are not approved, or only partly approved, for use in describing proved reserves for disclosure purposes to investors.

In addition, the rules simply have not kept up with the globalization of the industry. They were devised for onshore operations in “Texlahoma,” the “oil patch” of Texas, Louisiana and Oklahoma that was the center of industry activity in the ‘50s and ‘60s. Today more than 80 percent of the total of companies' proved reserves are outside the US; and the differences among the fiscal regimes in several countries make it harder, not easier, to compare domestic and international reserves. As perverse as it may sound, under the “production-sharing

agreements” that are common in many oil-producing countries, when the price goes up, the proved reserves go down.

Major projects today dwarf those in the past, both in size and complexity. “Non-traditional” projects are drawing on increasing share of capital, but they are not adequately accommodated under the “1978 system.” This includes a significant part of Canadian oil sands, gas-to-liquids and ultra deepwater projects. And yet such non-traditional liquids will account for as much as 45% of oil production capacity in North America by 2010. Nor does the current system fully account for larger, commodity-driven liquefied natural gas business that will be critical to the future US natural gas supplies.

But the industry is still required to report using the technology of the 1970s—when no one had a cell phone or a personal computer, let alone access to the Internet. It is as though companies preparing financial reports to the SEC in 2006 could do so only use typewriters and carbon paper. Modernizing the reserves disclosure would clearly improve understanding of the resource base and its potential and provide clarification for purposes of energy security.

Energy Security in the 21st Century

The current energy security system was created in response to the 1973 Arab oil embargo to ensure coordination among the industrialized countries in the event of a disruption in supply, encourage collaboration on energy policies, avoid bruising scrambles for supplies, and counter any disruption. Its key elements are the Paris-based International Energy Agency (IEA), whose members are the industrialized countries; strategic stockpiles of oil, including the US Strategic Petroleum Reserve; continued monitoring and analysis of energy markets and policies; and energy conservation and coordinated emergency sharing of supplies in the event of a disruption.

Experience has shown that to maintain energy security countries need to recognize several key principles.

The first is diversification of supply. Multiplying one’s supply sources reduces the impact of a disruption in supply from one source by providing alternatives, serving the interests of both consumers and producers, for whom stable markets are a prime concern. But diversification is not enough.

A second principle is resilience, a “security margin” in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions.

Resilience can come from many factors, including sufficient spare production capacity, strategic reserves, backup supplies of equipment, adequate storage capacity along the supply chain, and the stockpiling of critical parts for electric power production and distribution, as well as carefully conceived plans for responding to disruptions that may affect large regions.

The dramatic reduction in spare capacity in recent years has meant a shrinking of the security margin. The loss is somewhat offset by the growth of strategic stocks, which total about 1.4 billion barrels among the industrial countries, but these stocks are not part of the regular interplay in the market.

Hence the third principle: recognizing the reality of integration. There is only one oil market, a complex and worldwide system that moves and consumes about 85 million barrels of oil every day. For all consumers, security resides in the stability of this market. Secession is not an option.

A fourth principle is the importance of information. High-quality information underpins well-functioning markets. Information is crucial in a crisis, when consumer panics can be instigated by a mixture of actual disruptions, rumors, and fear. Reality can be obscured by accusations, acrimony, outrage, transforming a difficult situation into something much worse. In such situations, governments and the private sector should collaborate to counter panics with high-quality, timely information.

As important as these principles are, the past several years have highlighted the need to expand the concept of energy security critical dimensions:

One of these new principles recognizes the need to globalize the energy security system, which means, especially, engaging China and India.

It is important to get China's situation into perspective. Despite all the attention being paid to China's efforts to secure international petroleum reserves, for example, the entire amount that China currently produces per day outside of its own borders is equivalent to just 10 percent of the daily production of one of the supermajor oil companies. If there were a serious controversy between the United States and China involving oil or gas, it would likely arise not because of a competition in a well-functioning global market for the resources themselves, but rather because they had become enmeshed in larger foreign policy controversies (such as a clash over a specific regime or over how to respond to Iran's nuclear program). Indeed, from the viewpoint of consumers in North America, Europe, and Japan, Chinese and Indian investment in the development of new energy supplies around the world is not necessarily the threat it is often portrayed as, but rather something to be desired, because it means there will be more energy available for everyone in the years ahead as India's and China's demand grows. It would be more troubling were those countries not investing in the development of new supplies.

It would be wiser—and indeed it is urgent—to engage these two giants in the global network of trade and investment rather than see them tilt toward a mercantilist, state-to-state approach. Engaging India and China will require understanding what energy security means for them. Both countries are rapidly moving from self-sufficiency to integration into the world economy, which means they will grow increasingly dependent on global markets even as they are under tremendous pressure to deliver economic growth for their huge populations, which cope with energy shortages and blackouts on a daily basis. Thus, the primary concern for both China and India is to ensure that they have sufficient energy to support economic

growth and prevent debilitating energy shortfalls that could trigger social and political turbulence.

Another new principle of energy security is to recognize that the concept of energy security needs to be expanded to include the protection of the entire energy supply chain and infrastructure.

None of the world's complex, integrated supply chains were built with security, defined in this broad way, in mind. Hurricanes Katrina and Rita brought a new perspective to the security question by demonstrating how fundamental the electric grid is to everything else.

Energy interdependence and the growing scale of energy trade require continuing collaboration among both producers and consumers to ensure the security of the entire supply chain. Long-distance, cross-border pipelines are becoming an ever-larger fixture in the global energy trade. There are also many chokepoints along the transportation routes of seaborne oil and, in many cases, liquefied natural gas (LNG) that create particular vulnerabilities.

The challenge of energy security will grow more urgent in the years ahead, because the scale of the global trade in energy will grow substantially as world markets become more integrated. Currently, every day some 40 million barrels of oil cross oceans on tankers; by 2020, that number could jump to 67 million. By then, without major technical changes, the United States could be importing 70 percent of its oil (compared to 58 percent today and 33 percent in 1973), and so could China.

But in the United States, as in other countries, the lines of responsibility—and the sources of funding—for protecting critical infrastructures, such as energy, are far from clear. The private sector, the federal government, and state and local agencies need to take steps to better coordinate their activities.

Markets need to be recognized as a source of security in themselves. The energy security system was created when energy prices were regulated in the United States, energy trading was only just beginning, and futures markets were several years away.

Today, large, flexible, and well-functioning energy markets provide security by absorbing shocks and allowing supply and demand to respond more quickly and with greater ingenuity than a controlled system could. Such markets will guarantee security for the growing LNG market and thereby boost the confidence of the countries that import it. There is much to be said in terms of resisting the temptation to intervene and micromanage markets. . Intervention and controls, however well meaning, can backfire, slowing and even preventing the movement of supplies to respond to disruptions. At least in the United States, any price spike or disruption evokes the memory of the infamous gas lines of the 1970s. Yet those lines were to a considerable degree self-inflicted—the consequence of price controls and a heavy-handed allocation system that sent gasoline where it was not needed and denied its being sent where it was.

Contrast that to what happened immediately after Hurricane Katrina. A major disruption to the US oil supply was compounded by reports of price spiking and of stations running out of gasoline, which together could have created new gas lines along the East Coast. Yet the markets were back in balance sooner and prices came down more quickly than almost anyone had expected. Emergency supplies from the US Strategic Petroleum Reserve and other IEA reserves were released, sending a “do not panic” message to the market. At the same time, two critical regulatory restrictions were eased. One was the Jones Act (which bars non-US-flagged ships from carrying cargo between US ports), which was waived to allow non-US tankers to ship supplies bottlenecked on the Gulf Coast around Florida to the East Coast, where they were needed. The other was the set of “boutique gasoline” regulations that require different qualities of gasoline for different cities, which were temporarily lifted to permit supplies from other parts of the country to move into the Southeast. The experience highlights the need to incorporate regulatory and environmental flexibility—and a clear understanding of the impediments to adjustment—into the energy security machinery in order to cope as effectively as possible with disruptions and emergencies.

The US government and the private sector should also make a renewed commitment to energy efficiency and conservation.

Although often underrated, the impact of conservation on the economy has been enormous over the past several decades. Over the past 30 years, US GDP has grown by 150 percent, while US energy consumption has grown by only 25 percent. In the 1970s and 1980s, many considered that kind of decoupling impossible, or at least certain to be economically ruinous. Current and future advances in technology could permit very large additional gains, which would be highly beneficial not only for advanced economies such as that of the United States, but also for the economies of countries such as India and China (in fact, China has recently made conservation a priority).

The investment climate itself must become a key concern in energy security.

There needs to be a continual flow of investment and technology in order for new resources to be developed. The IEA recently estimated that as much as \$16 trillion will be required for new energy development over the next 25 years. These capital flows will not materialize without reasonable and stable investment frame-works, timely decision making by governments, and open markets. This is a topic for discussion, as observed earlier, for the G-8 Summit and, more generally, in U.S. discussions with other countries.

Development of new technologies will remain the fundamental starting principle of energy security for both oil and gas.

This will require new generation of nuclear power and “clean coal” technologies and encouraging a growing role for a variety of renewable energy sources as they become more competitive. It will also require investing in new technologies, ranging from near-term ones, such as the conversion of natural gas into a liquid fuel, to ones that are still in the lab, such as the biological engineering of energy supplies. Investment in technology all along the energy

spectrum is surging today, and this will have a positive effect not only on the future energy picture but also on the environment.

We talked earlier of the widening definition of oil. We will also see the widening definition of gasoline with what has recently become a broad commitment to introducing ethanol into the gasoline pool. Undoubtedly we will see a substantial growth of ethanol and the infrastructure to support it. But we have to remember the overall scale of the target envisioned in the 2005 legislation would be about five percent of total supply. Given the current incentive to step up in investment, the number could well be higher. But, as noted before, achieving much larger objectives depends on substantial advances in the science of cellulosic ethanol. Certainly this will be a major focus of effort in the years ahead.

Finally, we must return to the larger context. Energy security indeed exists in a larger context. In a world of increasing interdependence, energy security will depend much on how countries manage their relations with one another, whether bilaterally or within multilateral frameworks. That is why energy security will be one of the main challenges for US foreign policy in the years ahead. Part of that challenge will be anticipating and assessing the "what ifs." And that requires looking not only around the corner, but also beyond the ups and downs of cycles to both the reality of an ever more complex and integrated global energy system and the relations among the countries that participate in it.

Mr. ISSA. Thank you, Doctor.

And since each of the witnesses is touching on Brazil, I might only note from the dais that when I became chairman of this committee a year and a half ago, one of the topics I was asked to take a look at was the 54 or so cents of tariff on Brazilian, and other countries, beyond their quota for ethanol. And now that the price of gasoline has gone up by \$1, I do note it as interesting that it is still impossible to sell this ethanol even when the price of the end fuel has risen by over \$1. So although I am sympathetic with the gentleman, Mr. Van Hollen, that I would like to see no tariffs, I did want to note—and perhaps you will note in your testimony—that it does not seem like any increase in price ever eliminates the complaint that a 54-cent tariff is a barrier to entry for competition.

With that, Ambassador Smith.

STATEMENT OF KEITH C. SMITH

Mr. SMITH. Thank you very much, Mr. Chairman. It is a particular delight to be here because I have been writing about this subject for a couple of years, and most of the reaction has been a giant yawn, including a yawn by my colleagues.

Mr. ISSA. Be it noted that the committee staff has read every bit of it, and that is how you got to be here.

Mr. SMITH. Thanks. Well, you have seen most of what I have to say then, and I will just add a few points.

For me, it was kind of interesting to see the reaction—and I am in Europe a lot—of the Europeans to the January 1st cutoff of natural gas from Russia to Ukraine. One thing to be noted, it is almost universally said that was a cutoff of Russian gas to Ukraine, but most of the gas that was cutoff was cutoff from Turkmenistan. So really, Russia cut off Turkmenistan gas to Ukraine, and that is something to keep in mind as we look at the politics of Russian energy policy. It is something that I think has been ignored in Europe. Unfortunately they have made themselves even more dependent on Russia because there is no concerted energy policy within the European Union. And there still isn't. After January, there has been an attempt by the European Commission to put together an energy policy, a common energy strategy in dealing with Russia, and there has been a very nice green paper that has been issued. But, quite frankly, you are faced in Europe with large countries who want to deal bilaterally with Russia and don't want anything to do with the Director General for Transportation Energy in the European Commission.

So the chances of a really combined European strategy in dealing with Russia and energy politics I think is quite low. And, quite frankly, I haven't seen any reason to think—I am glad that the Government witnesses are gone, but that we ourselves are prepared to deal in, I think, a more realistic way with some of the Russian challenges.

I do not consider myself a Russophobe. I, in fact, have a lot of very, very close friends in Russia, and some of them who are more critical of Russian Government energy policy than I am. I think in the long run it is important that we have very frank dialog with the Russians, and I think that the Russian Government is not in a position—or is not willing, I think, to react to any of this dialog

until we create some realities on the ground, which is we set standards that they have to meet, reciprocity in investment policy, reciprocity as far as transparency. These are the kinds of things that I think will make Russia react.

Russia is going through a very difficult psychological period right now. You have a very self-confident Kremlin, one that thinks—one that sees oil at \$70 a barrel. It sees Europe preoccupied with trying to get energy from whatever source it can. It sees the United States preoccupied with terrorism and in Iraq. And it believes that it really can kind of call the shots when it comes to energy supply in certain markets.

At the same time in Russia, you have a lot of insecurity. I mean, for one there is the insecurities that to some extent come from paranoia. They see the Orange Revolutions or the changes of government in Ukraine and in Georgia as threats to Russian security. After the Orange Revolution in Russia, there was a real feeling in Russia that Russia was next and that the Western powers, in fact, were going to try to topple the Russian Government. I mean, this was a real feeling in Moscow. Part of this was fed by the so-called political technologists who went from Russia to kind of manipulate the election in Ukraine in 2004 in support of Mr. Yanukovych. They lost. They tried to rig the election and they lost in the long run, and they had to go back to Russia and explain why they lost. And, of course, the explanation they came up with was, oh, these wily Americans with their nongovernmental organizations were able to kind of manipulate the electorate in Ukraine, just like they had done in Georgia, and we are next.

So I think we are dealing with a very self-confident Russia in some ways, but a very insecure Russia in others, and it is going to be a challenge to the policymakers to deal with that.

I think that some of the problems in Eastern Europe are problems self-induced. There has to be a push not just in Russia but in the receiving countries for more transparency, more business transparency, to prevent the corrupt elements on both sides from putting together these deals.

I would also kind of lament to some extent that I think that the German Government is in a very key position to influence Russia and Russia's energy policy, but I think the new German Government, to my disappointment, has kind of carried on the energy policies of Mr. Schroeder, which are kind of independent of the rest of Europe and the concerns for their Eastern neighbors, and I think this is—I hope that we have a long-term dialog with the Germans in which we can kind of help the Central Europeans get past this.

Basically, I think that is about all I have to say beyond what my remarks were, Mr. Chairman. Thank you.

[The prepared statement of Mr. Smith follows:]



Statement before the House Government Reform Subcommittee on
Energy and Resources
and the Subcommittee on National Security, Emerging Threats, and
International Relations

*“Russian Energy Policy and its Challenge to Western
Policy Makers”*

A Statement by

Ambassador Keith C. Smith

Senior Associate, Europe Program
Center for Strategic and International Studies (CSIS)

May 16th, 2006

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The House Government Reform Subcommittee on Energy and
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and the Subcommittee on National Security, Emerging Threats, and
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**“Russian Energy Policy and its Challenge to Western
Policy Makers”**

May 16th, 2006

Mr. Chairman and Members of the Committee, it is a pleasure to appear today to discuss the implications for U.S. and Europe of Russian Energy Policy.

Summary of My Testimony

- The U.S. and the EU have too long ignored Kremlin’s non-transparent and monopolistic energy policies and its use of energy to exert control over the new democracies of Central and Eastern Europe.
- The Ukraine-Russian “gas war” in January was only a continuation of Russia’s petro-politics, that started with the fall of the Soviet Union in 1990.
- The U.S. and Europe’s tolerance of these coercive policies and non-transparent business practices have helped signal to the Kremlin that the West needs Russian energy exports more than Russia needs the West’s export revenue, energy financing and technology.
- A coordinated U.S. and EU energy policy is needed toward Russia to prevent the Kremlin from expanding its political leverage over the new democracies of Central Europe, and also with key Western European nations.
- The West must cooperate to make Russian energy policies and actions more transparent, competitive and reciprocal, by following internationally accepted business practices. Western tolerance of Moscow’s imperialistic use of energy resources and pipeline monopolies only prevent Russia’s own development into a genuine strategic partner.
- Recent developments in German-Russian energy relations may seriously hamper European energy cooperation and the region’s security interests.
- The U.S. and EU should assist Ukraine, Georgia and Moldova by helping them develop alternative pipelines and sources of energy supply.
- Central European countries can improve their own security by increasing domestic energy storage, by boosting indigenous supplies of gas and oil and by creating a welcoming and transparent environment for foreign investors.

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K. Smith (CSIS)

A Delayed Wake-up Call

Gazprom's January 1st cutoff of natural gas to Ukraine was a much delayed wake-up call for Western Europe and the United States regarding Moscow's willingness not only to use its energy resources as political leverage in Europe, but also to undermine the new democracies that most recently emerged from decades of Kremlin control.¹ Russia's recent sharp increases in natural gas prices to Ukraine, Georgia, Armenia and Moldova, and its increasing control over Europe's gas pipeline systems, raise fresh issues concerning Russia's foreign economic policies and the security implications for Europe. Russia's energy strategy also raises the stakes regarding America's own growing dependency on energy imports, and should lead us to question expectations that Russian supplies of gas will help America's energy security. Unfortunately, the U.S. and Western Europe have largely ignored this problem until recently because the coercive nature of Russia's petro-politics has largely been confined to East Central Europe and Central Asia.

For many new EU member states such as Poland, Latvia, Lithuania, and for new democracies, such as Ukraine, Georgia, and Moldova, Russian energy control is an old problem. Central European attempts to raise this issue in Western capitals have until recently been brushed aside. The rapid acceptance in 2005 by the EU Commission of the Russian-German undersea gas pipeline project was a serious mistake and raises questions about Europe's ability to implement a common foreign and security policy. The concerns voiced by the Central Europeans should have been examined in detail both in Brussels and in European capitals. More attention should have been focused on the agreement's implications for Europe's long-term energy security, and on the ability of the new EU members in Central Europe to resist Moscow's political and economic influence.

The European Commission and the United States have only started looking seriously at the risks to Europe and the West of dependency on Russia after the cut off of gas to Ukraine in January of this year. Nevertheless, the slowness of our response is leaving Russian companies plenty of time to stitch together additional bilateral deals with Western governments, all anxious to help their companies gain an investment foothold in Russian energy production. A re-examination of EU policy may be made more difficult by the curious fact that Russia plays an important role in the EU's own Energy Treaty Commission (ETC). This is the case, even though Moscow has refused to ratify and implement the Energy Charter, and particularly the draft Transit Protocol. Ratification and implementation of this agreement would have resulted in greater competition in Russia's energy transportation sector. In spite of pressure from the EU to ratify the Charter, Gazprom's Deputy CEO Medvedev has labeled it as a "stillborn document."

¹ "Russia stops natural gas to Ukraine: Pipeline to EU nations could be in jeopardy," Alex Rodriguez. Chicago Tribune, January 2, 2006.

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²Gazprom believes that its bargaining position outweighs that of the EU or U.S. as a result of high energy prices and of instability in producer countries. In any case, the long-term political and security significance of the Putin Government's assertive energy policies warrants much closer study by Western governments, including by the United States.

There is an unrealistic expectation in some circles in the U.S. that Russian natural gas supplies from the Russian Far East or from off-shore in the Barents Sea will fill the gap created by declining domestic and Canadian production and by political instability in Latin America, Nigeria and the Middle East. The reality is that Russian oil and gas exports are not growing at the pace they were just 3-4 years ago. In addition, investment in Russian exploration and development has declined from the level that existed before the systematic destruction of Yukos began in 2003 and paralleled the increased centralized control of almost all oil and gas resources under the Kremlin Administration. Another factor to consider is that Russia, as it has in Europe, will demand easy non-reciprocal access to U.S. "downstream" facilities as a price for U.S. company participation in Russian energy production, particularly in the giant Shtokman gas field in the Barents Sea.

Pipeline Politics and Western Vulnerabilities

The Putin Government has made it clear that it intends to use its energy export power to regain Russia's Cold War influence around the world. Former Kremlin economic adviser, Andrei Illarionov, who was pressured into resigning last December, has cited Russia's increasing tendency to use energy as a weapon in its relations with other countries. This warning by a former Kremlin insider should be taken seriously by Western governments.³ Gazprom's recent takeover of the Armenian and Moldovan gas pipeline systems and its actions in Ukraine demonstrate Russia's willingness to use its considerable energy muscle to secure control of the energy infrastructure in neighboring states for political purposes.⁴

EU ambassadors in Moscow were recently warned by Gazprom's CEO, Alexei Miller, that Russia could divert natural gas now going to Europe to China and the U.S. if the company were not allowed more freedom to buy of European downstream energy facilities. Miller was not offering similar access to Russian energy markets. This comment was quickly followed by a similar threat from President Putin. Little attention was given in the Western press to the fact that Russia does not allow Western firms the same degree of access to Russian facilities that Russian state energy companies already have in Europe and the United States. Moscow clearly believes that the tight world

² Richard Orange, "Don't stand in our way; in the 20 years I've been doing this, I've never seen Gazprom exert this extent of bullying or political pressure," *The Business*, April 30, 2006

³ "Russia: Putin's ex-ai

de says he quits because he could no longer speak out," BBC Monitoring, December 30, 2005.

⁴ "Russia's gas contacts with Armenia require complex approach," RIA Novosti, December 7, 2005;

"Moldova-Gas debt grows 98% to \$496 million in 2004," ITAR-TASS News Agency, July 29, 2005.

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energy market and high prices provide it with enough leverage over the West to pursue non-reciprocal policies and to continue to follow monopolistic, non-transparent business practices.

“Pipeline imperialism” by Moscow dates back to 1990, when it interrupted energy supplies to the Baltic States in a futile attempt to stifle their independence movement. The “energy weapon” was again used against the Baltic States in 1992, in retaliation for Baltic demands that Russia remove its remaining military forces from the region. In 1993 and 1994, Russia reduced gas supplies to Ukraine, in part, to force Kiev to pay for previous gas shipments, but also to pressure Ukraine into ceding more control to Russia over the Black Sea Fleet and over Ukraine’s energy infrastructure.⁵ Even Belarus, and indirectly Poland and Lithuania, suffered supply disruptions in 2004 from the Kremlin’s effort to take over Belarus’ gas pipeline system. From 1998 to 2000, in an attempt to stop the sale of Lithuania’s refinery, port facility, and pipeline to the Williams Company of Tulsa, Oklahoma, Transneft, Russia’s monopoly transporter of piped oil, stopped the flow of crude oil to Lithuania *nine* times.

Russia’s Gazprom, with the help of Germany’s Ruhrgas, exercises control over the gas facilities and pipelines in the three Baltic States, where they also have monopoly control of the domestic gas markets in all three Baltic States.⁶ Media outlets in the West have generally ignored Transneft’s refusal to allow Kazakhstan to supply oil to Lithuania’s Mazeikai Refinery through the Russian pipeline system. Kazakhstan’s oil company has the legal right to ship crude oil to the Baltic coast, based on their transit agreement with Transneft agreed to last fall.⁷ Moscow is determined to prevent any but a Kremlin approved company from taking over the Yukos ownership of Lithuania’s facilities. Three years ago, Russia stopped all piped shipments of oil to Latvia in an effort to gain control over the oil port at Ventspils. Now, Moscow is again attempting to keep non-Russian companies from buying Lithuania’s Mazeikai Nafta Refinery and the port at Butinge, on the Baltic Sea. This use of pipeline imperialism is ignored in the West even though Latvia and Lithuania are EU and NATO members.

The Russian pipeline monopolies of Gazprom (natural gas) and Transneft (oil) have been given free rides in terms of the open-market requirements of WTO and the EU’s own Energy Charter. The EU’s agreement with Russia on WTO in effect gave Moscow’s increasingly monopolistic pipeline and production companies carte blanche to avoid following accepted Western business practices.⁸ The WTO agreement with the EU (not challenged by the U.S.) also allowed Russia to maintain a trade advantage in industrial goods by keeping its domestic energy prices at a fraction of world market prices.

⁵ Paul J. D’Anieri, *Economic Interdependence In Ukrainian-Russian Relations* (Albany: State University of New York Press, 1999),

⁶ Energy Intelligence Agency; country analysis briefs, Baltic Sea Region, March 2005.

<http://www.cia.doe.gov/emeu/cabs/baltics.html>

⁷ Valeria Korzhagina, “Kazakhs Fume Over Lithuanian Oil Deal,” *Moscow Times*, November 21, 2005.

“Transneft stops oil transit from Kazakhstan to Lithuania, *Elta-Itar-Tass*, Nov 17, 2005.

⁸ European Commission report on the EU – Russia Energy Dialogue. http://europa.eu.int/comm/energy/russia/overview/index_en.htm

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German-Russian Energy Relations

Russia stands to greatly increase its market share and its leverage in Germany and the rest of Europe through the construction of the expensive undersea **Northern Europe Gas Pipeline (NEGP)**. The construction of a parallel pipeline to the Yamal I line that runs through Poland would have been a much cheaper alternative (now estimated at \$10.5 billion for NEGP vs \$2.8 billion for Yamal II)⁹. In addition, the enlargement of the Yamal line would have given both Central and Western European energy consumers greater political and economic security.¹⁰ The increased costs of the NEGP will be passed on to Western consumers to the benefit of Russian and German gas suppliers and the German banking community.

Chancellor Merkel struck a cautious tone during her December visit to Warsaw when referring to the NEGP project. She said, "We want this project to be accessible to everyone...and the interests of all involved parties should be taken into account."¹¹ Later however she announced her full support for the original deal, as signed by former Chancellor Schroeder one week before leaving office. This deal involving Russia and Germany, included the granting of a 1 billion loan guarantee by the German government for the pipeline's construction. With the recent signing of agreements between Russian companies and BASF, EON and Ruhrgas, it appears as if the new government in Berlin will be supporting Gazprom's aggressive ownership inroads into German gas and electricity companies. German energy policies have created significant anxiety among Central Europeans concerning the West's willingness to help protect their newly won sovereignty.

The Russian-German agreement, unless modified, will give Russia's state-run Gazprom a significant voice in German domestic energy policies, and indirectly over the gas markets in all of Central Europe. Germany as an energy market and a source of bank financing, however, is crucial to Russian development. Germany should follow through on Chancellor Merkel's promise to implement a German energy policy that takes into account the security interests of the Baltic States and Poland. If changes are not made in the Schroeder-Putin agreement on the Baltic pipeline, Germany may face an increasingly insecure neighborhood to its east. Germany may also down the road confront the same Russian control of its domestic energy markets that face the newly independent states who so recently emerged from Soviet domination.

No single country wields more influence in Moscow than does Germany. The trade and financial ties between Berlin and Moscow are important to the sustained development of both nations. Although many outside of Germany were disappointed with Chancellor Schroeder's support for President Putin's domestic policies, everyone recognizes the value to European security of a close, constructive German-Russian

9 Ariel Cohen, "The North European Gas Pipeline Project" < <http://www.harrimaninstitute.org/MEDIA/00491.pdf> >

10 "Poland Wants Expanded Yamal-Europe Pipe", Russia & CIS Oil and Gas Weekly, December 1, 2005.

11 Yelena Shesternina, "Chancellor of Germany Urges Poles not to Fear," Izvestia, December 6, 2005

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relationship. Good friends, however, should not avoid frank discussions of latent imperial tendencies in Russia's foreign policies. Germany continues to become more dependent on Russian gas imports (now over 44% of all the gas that Germany imports). This import dependence could well grow to 80% after the completion of all phases of the Northern Europe Gas Pipeline (NEGP).

Is the West Paying Attention?

Europe's energy relationship with Russia has for the past several years been directed by only a few of the larger member countries. The leaders of these countries have too often praised President Putin's democratic credentials while ignoring Russia's backsliding on democracy and the coercive use of Russian energy power. The U. S. has also been until quite recently more eager to secure energy supplies from Russia than to pressure the Kremlin into reforming its economy. The EU and the U.S. have ignored the noncompetitive and political aspects of Russia's energy export policies. This is due in part to competition by Western companies for exploration and production rights in Russia. Although the EU recently initiated a more comprehensive study of the Community's energy security, the large countries of Europe continue to resist submitting to a common EU energy policy. Meanwhile, Russian companies are rapidly locking up non-transparent business deals with individual European nations.

We should expect that Moscow's exercise of "petro-politics" will be a subject for discussion at the G-8 summit. This vital issue also needs more discussion within the EU Commission, and between the Commission and other importing countries such as the United States and Japan. Russia's Deputy Prime Minister and Gazprom Deputy CEO, Alexander Medvedev, told the British daily, *The Guardian*, in January, that "politics is always there" when one is doing energy business.¹² This is no surprise, but our relying on energy from an increasingly authoritarian government intent on increasing Russian political influence in neighboring countries, is troubling. If on the other hand Russia's energy wealth were more transparently and competitively managed, it would dramatically increase domestic Russian living standards, bring Russia real international respect and help cement a Europe that would feel more unified and secure.

Europe as Hostage to Russian Energy

The importance of good relations between Russia and the West, and particularly between Germany and Russia, cannot be underestimated. Nevertheless, it is a mistake for us to give Moscow the impression that we believe that the West needs Russian energy supplies more than Russia needs the oil and gas revenue that comes from the Western markets. Nor is it wise to let the Putin Government believe that its authoritarian domestic policies are acceptable in the West as long as there is an expectation of increasing exports of Russia's energy resources. Simply stated, Russia is not able to develop its vast energy

¹² "We won't be turning off the taps, Russia's gasman reassures Britain: Gazprom deputy on Putin, Ukraine and ambitions to increase output to the UK," Terry Macalister. *Guardian Financial Pages*, January 18, 2006.

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fields in Siberia, the Pacific Coast and in the Barents Sea before the middle of the next decade without Western capital and technology.

There are growing indications that Russia will be unable to meet European, Chinese, Japanese and American expectations for significant increases in energy imports unless Russia offers foreign investors a significantly greater participation in exploration and development of Russia's new gas and oil fields. Russian gas exports to the West are already dependent on Gazprom's ability to monopolize and control gas exports from Turkmenistan, Kazakhstan and Uzbekistan.¹³ This Russian dependency on Central Asia will increase over the next 7-10 years, until there are substantial gas flows from the Shtokman field in the Barents Sea, and from new wells in the Sakhalin and Siberian fields. In the past, Gazprom has neither had a reputation in the industry for innovation nor for productivity increases in exploration and development. With the company now under tighter control by the Kremlin, there are good reasons to question whether Gazprom and the increasingly powerful Rosneft will have the managerial skills, financing and technology necessary to meet Russia's export goals through increased domestic production.

There has been no coordinated push by either the EU or the U.S. to require that Russia open its energy market to foreign investors in the same way that Western companies and markets are open to Russian investors. Lukoil has been allowed to buy 100% of Getty Petroleum in the U.S., along with 1,500 gas stations. U.S. energy companies can, according to Russian law, only own 49% of a Russian company and in practice 20% ownership appears to be the ceiling set by the Kremlin. We should be using our considerable leverage to force Russia to play by the same transparent, competitive rules that guide business in the West. Western governments should not have acquiesced to this uneven playing field, but should have demanded full reciprocity with Russia in their investment policies. This would help promote the kind of investment that would increase, rather than decrease, economic reform and a more balanced growth in Russia itself. President Putin has compared the new Gazprom colossus to Norway's Statoil, but the latter has real domestic competition, its exports are divorced from foreign policy and it is a totally transparent company.¹⁴ Gazprom, with its interlocking ties to the Kremlin Administration and its gas pipeline monopoly, cannot be compared to any Western firm.

The pipeline monopolies of Transneft and Gazprom are contrary to the Energy Charter signed by the EU and Russia. Where is the pressure on Russia to ratify and implement the charter?¹⁵ Following the destruction of Yukos, Russian officials declared that private companies would not be allowed to build pipelines in their country.¹⁶

¹³ "Ukraine is increasingly dependent on Gas from Turkmenistan," Ethan Wilensky-Lanford. New York Times, January 10, 2006.

"Russia, Ukraine end gas row, Europe queries energy dependence," Agence France Presse, January 4, 2006.

¹⁴ Pavel K. Baev, "Putin, Gazprom, and the other Norwegian company," Eurasia Daily Monitor, February 6, 2006.

¹⁵ <<http://europa.eu.int/scadplus/leg/en/lvb/l27028.htm>> Last updated: 13.08.2001.

¹⁶ "Putin may allow private companies to build pipelines in Russia," Prime-Tass, April 29, 2004.

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Former Siloviki Making Energy Policy

Former intelligence officers (siloviki) in the Putin administration and in Russia's energy companies have a strong role in determining national energy policy. The head of Rosneft is a former KGB associate of President Putin, and he helped engineer the breakup of Yukos and his company's seizure of the most valuable assets of Yukos.¹⁷ Former KGB and GRU officers sit on the boards of almost all the country's major energy companies. In 1999, Moscow went so far as to send a former KGB/FSB officer as ambassador to Lithuania, in an attempt to provide behind-the-scenes support to Lukoil's negotiations with the Lithuanian Government and the Williams Company. Before assuming the job, the ambassador had been the FSB's official liaison officer with Lukoil.

A few former intelligence officers are quite progressive in their views. The majority of them, however, oppose any weakening of the state through the growth of a transparent, independent private sector, and find the idea of a win-win energy deal with a Western company generally to be an alien concept. Granting majority control to a Western energy firm is viewed by most former intelligence officers as a danger to Russia's national security interests. Even the Western managers of TNK/BP are no longer permitted to see their company's own seismic data. President Putin's use of Matthias Warnig, a former East German Stasi officer and now Dresdner Bank executive, to play a central role in financing and managing the undersea Baltic pipeline system only added, perhaps unfairly, to suspicion that the project is more politically than commercially motivated.¹⁸ Mr. Warnig, who was earlier proposed by Gazprom to sit on its board, will work directly under former Chancellor Schroeder in managing the Baltic pipeline system.¹⁹

Ceding Too Much Control to Gazprom

More thought should be given by Western governments to the potential power of Gazprom to control the gas markets in Central Europe following the completion of the Baltic pipeline system in 2011-12. Under the German-Russian agreement, Gazprom will be able to buy significant shares in Germany's gas companies.²⁰ Will this allow Gazprom to veto shipments of gas from Germany to Poland if the Poles have a dispute with Gazprom over price or availability and Russia decides to reduce or cut off the flow of gas? Could the increased power of Gazprom be used to stop liquid natural gas (LNG) receiving plants from being constructed in Poland, Latvia, or even in Germany? How much more political influence will Moscow have in Berlin as a result of Germany's growing energy dependency on Russia and of Gazprom's large ownership stake in Ruhrgas?

¹⁷ Alexei Polukhin, "1.1 The Gas Secrets Non-disclosure Agreement," *Novaya Gazeta*, No.94, December 15, 2005, p.3.

¹⁸ Sally Bogle, "Gazprom, E.ON, BASF Begin Construction Work on NEGP, May Offer 9% to New Investor," *World Markets Analysis*, World Markets Research Centre, December 12, 2005.

¹⁹ "Government office chief replaces Novikov as Gazprom candidate," *Russia & CIS Energy Newswire*, February 9, 2006.

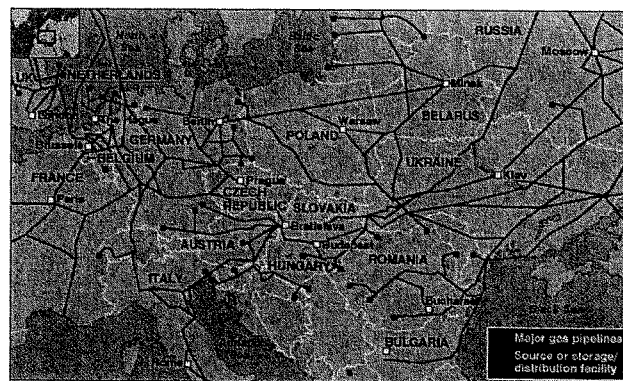
²⁰ "BASF, Gazprom strengthen ties, deepen cooperation in energy supply," *Agence France Presse*, April 11, 2005.

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The EU has proposed that member states increase their levels of natural gas storage. This may become more difficult now that Poland and the Baltic states are being bypassed by the NEGP. Russian purchases of gas from Turkmenistan, Uzbekistan, and Kazakhstan are designed to deny the West, including countries such as Ukraine, the ability to buy oil and gas directly from Central Asia or at prices negotiated between producer and consumer, rather than working through Gazprom.²¹ The company buys Central Asian gas at \$55 a cubic meter and sells Russian gas in Europe for over \$240. Monopoly control of the pipelines out of Central Asia is extremely profitable - for Russia. There is a question as to whether this coercive pipeline policy of the Kremlin is compatible with WTO membership. Considering our experience with China's WTO compliance, there are good reasons to doubt that Russia will let up its monopolistic pressure on Central Asian gas shipments after it has been admitted to the WTO. More open and competitive energy policies by Moscow before WTO membership would be wiser than repeating the China experience.

Gazprom is attempting to pressure Bulgaria into breaking a binding agreement on gas price and availability that would be in force until 2010.²² It is important for the EU to give this soon-to-be member state political support, perhaps using the forum of the Common Security and Defense Policy. So far, there is no sign that Brussels will intervene. Perhaps Bulgaria, as a member of NATO, should put the issue of energy security on NATO's agenda as suggested by Poland. NATO members have historically used the Alliance to examine issues that go beyond narrow questions of military defense.



EUROPE'S GAS PIPELINE NETWORK
 Source: Inogate (EU oil and gas transport co-operation programme) via BBC News

²¹ "Gazprom Established Control Over All Gas Resources of Three Asian Republics", The Russian Oil and Gas Report, November 14, 2005.

²² "Bulgaria Refuses to Review Gas Contract with Russia's Gazprom," Agence France Presse, January 6, 2006.

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No Big Winners in the Russia-Ukraine “Gas War”

This brings us to the Russia-Ukraine “gas war,” that was allegedly resolved to the satisfaction of both sides on January 4. Russia’s political agenda in using gas prices to punish the pro-Western Yushchenko government seems quite clear from statements made by Russian supporters of Moscow’s hard line toward Kiev and from remarks by Russia’s few remaining reformers²³. Moscow was obviously surprised and displeased by the December 2004 election of Victor Yushchenko and unhappy with his policies of moving Ukraine closer to the EU and NATO. This provoked Moscow into demanding revisions of the 2004 gas agreement that was written at Moscow’s insistence in order to help Viktor Yanukovich’s presidential aspirations. It is highly unlikely that Moscow would have demanded that Ukraine immediately pay “world market prices” for Russian energy imports if the pro-Moscow Viktor Yanukovich had taken power after the earlier rigged elections. It should not surprise anyone that the cut off of natural gas by Gazprom came in the middle of one the coldest winters in recent Ukraine memory and less than three months before crucial Ukrainian parliamentary elections.

Not many people familiar with political and economic relations between Russia and Ukraine believe that the current natural gas agreement will last very long.²⁴ And we would also be naïve to think that the present agreement will last beyond the next year without a Russian demand for revision and price increase. Moscow’s requirement that all gas to Ukraine be contracted through the nontransparent company RosUkrEnergo, the direct successor to the even less-transparent EuralTransGas, raises questions about the reliability of future gas supplies that originate in Central Asia or in Russia itself²⁵. It is not likely that the newly formed UkrGazEnergo will be any more transparent than the companies mentioned above, particularly in light of the continued lack of transparency in Gazprom and Naftogaz Ukrainy, and the fact that RosUkrEnergo remains a player under the “final agreement” signed by both sides on January 4. It is not a good omen that five or six agreements signed on January 4 between Ukraine and Russia were not made public by officials of either side. The reported “revelation” regarding the Ukrainian partners in RosUkrEnergo by a Gazprom owned newspaper should not be taken at face value. Over the past thirteen years, Moscow has clearly signaled that its intentions are to control Ukraine’s gas pipeline system, just as it now controls the gas pipelines in the Baltic States, Belarus, Poland, Armenia, and Moldova.

No one should have been surprised by Moscow’s tough stance towards Kiev. Russia’s willingness to stop energy shipments to Ukraine for political reasons goes back more than ten years. Nevertheless, one can make a good case that Russia has the right to charge importing countries market prices. An equally good case can be made that it is in the long- term interest of Ukraine and other importers to move in the direction of paying

23 “Russia: Putin’s ex-aide says he quits because he could no longer speak out,” BBC Monitoring, December 30, 2005.

Fred Weir, “Russia-Ukraine Gas Standoff,” Christian Science Monitor, January 3, 2006.

25 “Gazprom wants Naftogaz to take 50% stake in RosUkrEnergo” Interfax News Agency, Russia & CIS Business & Financial Daily

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world prices. Once market prices are reached, Moscow's political leverage will decrease. A four-fold overnight increase in price from \$50 to \$230 per 1,000 cubic meters as originally demanded by Russia last December, however, was not justified, particularly in light of the 2004 agreement between the Kuchma Government and Gazprom, which locked prices in until 2010.²⁶ Both sides should have taken the dispute over the agreement to international arbitration.

Part of the Kremlin's present strategy is to rapidly increase prices to weak neighboring states in the hope that they will build up large debts, be unable to pay for the gas, and ultimately have to cede control over their domestic gas pipelines to Gazprom or Transneft to pay for the arrearages. This is what has happened in Belarus, Armenia and Moldova and is currently being threatened in Ukraine, Bulgaria, Belarus and Slovakia. The West should also be concerned with Gazprom's move to monopolize all gas supplies from Turkmenistan, Kazakhstan and Uzbekistan. This monopoly position increases Moscow's political leverage in East Central Europe and may increase prices in the medium term in all of Europe.

It would help if we knew what the real market price of Russian gas and oil would be if a transparent situation existed within Russia's exporting companies. If Russian consumers were forced to pay prices that were significantly more than one-fifth of what Moscow claims to be the world market price, domestic demand would drop and additional Russian oil and gas would be placed on the international market. Does the \$47 per 1,000 cubic meters charged to Belarus have any relationship to the market, or does the Kremlin consider this an "internal price?" These are all questions that need greater discussion and scrutiny in European capitals, in Washington and in the EU Commission.

Ukraine Needs to Act to Strengthen its Own Hand

Ukraine's politicians, however, deserve some of the blame for the country's present situation. Kiev has allowed corrupt oligarchs to continue their control over gas deliveries from Russia and many of the domestic oil and gas fields. Even more damaging in the long run is the Yushchenko Government's lack of movement in developing fair and just conditions for both domestic and foreign energy investors. Here again, a few powerful individuals, most of them with close ties to Russia, have successfully kept out Western competitors. Ukraine could substantially reduce its dependency on Russia through rapid reforms that would permit more open tenders for exploration rights and a welcoming atmosphere for legitimate foreign energy investors. Seismic studies demonstrate that the country possesses considerable gas both on-shore, in the Black Sea and possibly in the Sea of Azov.

The present government in Kiev did inherit a situation in which there was little transparency in the entire energy market. Two thirds of Ukraine's refineries, processing

26 Daniel Kurdelchuk, Olexander Malinovsky and Inna Novak "A European Approach to Ukraine's Gas Dilemma: Road map to solve the dilemma" *Mirror-Weekly, International Social Political Weekly*, No.49 (577) December 17-23, 2005.

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three-fourths of the country's oil, were already owned by Russian companies.²⁷ Almost 100% of the refined product that is exported, is produced in Russian-owned companies. Ukraine's nuclear plants depend on Russian nuclear fuel rods. Former Russian Prime Minister Victor Chernomyrdin, who was also CEO of Gazprom, has for many years been Moscow's ambassador to Kiev. He has effectively promoted Russian energy interests.

The cozy relationship between Russian and Ukrainian energy interests persists, even after the New Year's Day reduction of gas supplies. Talk by the Yushchenko Government over the past year about diversifying imports and stopping corruption in the energy sector has resulted in some progress, but it has been too slowly implemented²⁸. The economics of the proposed Odessa-Brody oil pipeline are still in question, although it may be needed for security reasons. The NABUCCO gas pipeline project, which would go from Azerbaijan through Turkey to Austria, is a realistic alternative to gas shipments that go to Ukraine through Russia. A more immediate need is for the current Yekhanurov government to embark on an urgent program to improve energy efficiency, and to open the country's oil and gas fields to Western investors. Unfortunately, negotiations to form a new government after Ukraine's parliamentary elections in March have still not been successful, thereby perpetuating paralysis in much of the country's decision making apparatus.

Western acceptance of Russia's "neo-colonial" policies in Eastern Europe, the Caucasus and Central Asia are not in the long-term interests of Russia itself. Acquiescing to Moscow's more "robust" regional policies has only contributed to greater tension in Russian-East European relations and has slowed the development of democratic governments in the Caucasus and Central Asia. This in turn encourages and strengthens non-democratic elements in Russia that believe that their country's strength and prestige stems from control of the neighborhood – a large neighborhood at that.

Time for the West to Lead on Energy Policy

The EU should take the lead in building a more secure network of electricity inter-connectors between the countries of Western, Central and Eastern Europe. The EU could help marshal the international banks, such as the EBRD and EIB to take equity positions in the pipeline systems of Ukraine, Bulgaria, Moldova and Poland. This would help these countries modernize their pipelines and it would provide a "neutral" party that could keep the pipelines from being controlled by non-transparent Russian companies and guarantee competition in gas and oil transportation. International financing for the proposed NABUCCO natural gas line from Azerbaijan would offer Central Europe needed energy security, as would the building of the Odessa-Brody oil pipeline system.

The United States should re-examine its long-term energy relationship with Russia. Support for American investment in Russia's energy resources should not prevent us from demanding more transparent energy policies and a level playing field for

²⁷ "Ukrainian Oil Specialist Against Building of More Oil Refineries," ITAR-TASS, May 20, 2005

²⁸ "Ukrainian president outlines challenges at public forum," BBC Monitoring Kiev Unit, November 28, 2005

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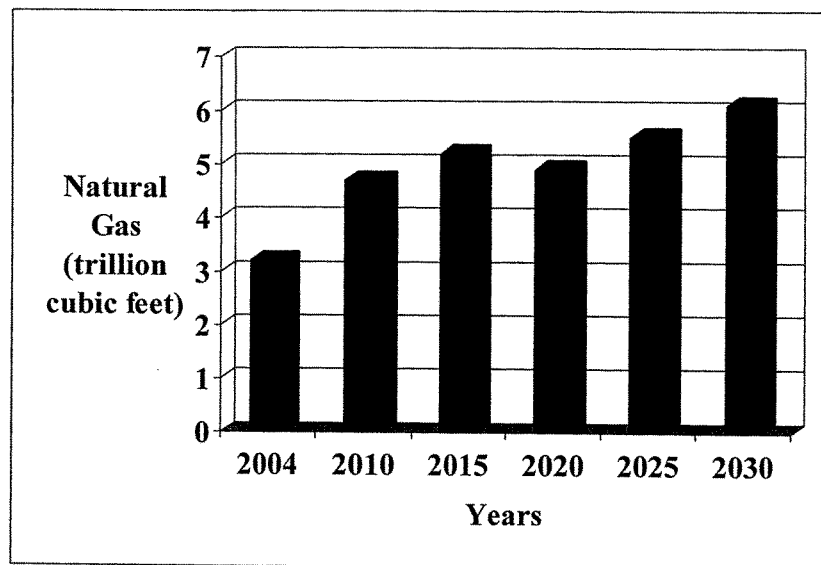
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foreign investors. We should expect a loosening of Russia's monopoly pipeline system and demand that Central Asian energy producers have direct access to Western markets. We are not being hostile toward Russia when we insist that there be reciprocity in Russian-European-U.S. energy relations. It would be foolish on our part not to see Russia evolve into an economically successful democracy. Everyone would gain. Russians are going through a difficult period psychologically. They are highly suspicious of America's motives in Central Europe and Central Asia and tend to believe that the U.S. and NATO are intent on "surrounding" Russia with hostile states; part of a grand scheme by the West to keep Russia weak economically and marginalized in international affairs. It is necessary for us to address these issues head on with our Russian colleagues, and at the same time work to counter Russian efforts to acquire psychological security by creating insecurity in Europe.

The West, led by cooperation between the EU and the U.S., needs to quickly rethink its energy and non-energy policies with Russia. The two cannot be separated. The world does Russia no favor by ignoring the monopoly and noncompetitive nature of this energy relationship. All sides would benefit if Russia were to become more transparent and commercial in its foreign energy policies. Meanwhile, neither EU nor U.S. should allow Moscow to threaten the security of Europe, particularly the new democracies of Central Europe through neglect or unwillingness to face down the new imperial mindset in the Kremlin. As Yuri Schmidt, the famous Russian human rights lawyer told audiences in Brussels in October, "Yes, Russia needs something from you. It needs your silence, and it is ready to pay you for it, too." The January 1 wake-up call to the West was also an opportunity for those who want to see Russia build a modern, democratic state that is linked to Europe by mutually beneficial political and economic ties.

Appendix

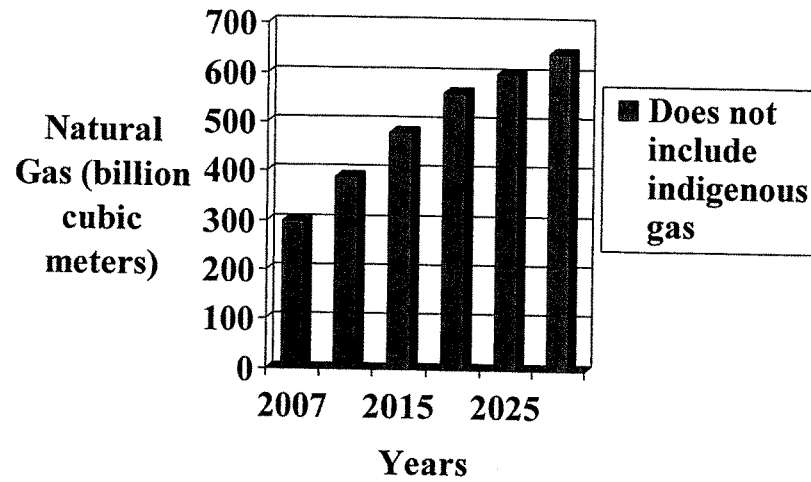
Projected U.S. Net Gas Imports 2004-2030



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Projected Natural Gas Imports EU-30 2007-2030



ACTION RECOMMENDATIONS FOR UNITED STATES

- Recognize that only increased Western cooperation on an energy policy toward Russia will succeed in forcing Moscow to adopt more transparent and market oriented energy policies.
- U.S. should engage in urgent consultations with the EU and bilaterally with allies regarding measures to counter Moscow's growing use of energy resources to coerce its neighbors in Central Europe. Some issues that could be discussed are:
 - o Impact on the security of Russia's neighbors and the West of the Kremlin's centralized control of the country's energy companies. Examine the degree to which Russian companies are in violation of Western competition, anti-trust and anti-monopoly laws.
 - o Measure that would provide Russia's Central European neighbors greater security of energy supply.
 - o Cooperation with Norway and other non-Russian gas regarding providing alternative supplies of gas to East Central Europe, and in creating a European-wide energy market.
 - o Accelerate pipeline construction, such as NSBUCCO, Caspian Sea Gas Pipeline and Odessa-Brody oil pipeline.
 - o Examine methods of sharing alternative and energy efficiency technologies developed by DOE and its European counterparts with Central European countries most dependent on energy imports.
 - o Draw up clear proposals to Central Europeans that would result in improved incentives for increased domestic and foreign investment in the energy sector.
- The U.S. Secretary of Energy, the EU's Director General of Transportation and Energy and Russian Energy Minister should meet at least biannually to talk about competition and monopoly use of facilities ownership and pipeline use. The goal of the meetings should be balance energy security for both export and import countries.
- The U.S. and EU could offer to share with Russia breakthroughs in energy technology as an incentive to greater cooperation in building a transparent and competitive energy market.

- Initiate U.S.-EU-German discussions regarding the impact of the Russian-German Northern Pipeline system on the security of Poland, the Baltic States and Western Europe. Could include an examination of the impact on Europe of additional downstream ownership by Gazprom of energy companies and facilities in Germany and other European states.
- Press for the implementation of energy investment policies that are reciprocal. Russian ownership in upstream and downstream operations should be limited to minority shares as long as the same situation exists for Western firms in Russia.
- Russia should be required to implement the Energy Charter, and particularly the Transit Protocol, as a requirement for WTO membership. This could reduce the coercive nature of Russia's pipeline politics.
- U.S. and European leaders should insure that they have realistic expectations of regarding the timetable for significant additional supplies of Russian oil and gas reaching the world market. Some statements by Western leaders indicate that they are not familiar with recent slowdowns in the growth of Russian production, or are aware that much higher world energy prices provide an incentive to stabilize production at lower levels than would be the case with lower prices.

Mr. ISSA. Thank you, and I would again ask unanimous consent that all opening statements be included in the record, without objection.

Mr. Goldwyn, please.

STATEMENT OF DAVID GOLDWYN

Mr. GOLDWYN. Thank you, Mr. Chairman, members of the committee, for the honor of testifying today, and thank you for paying attention to this subject. As a citizen, I think there is no greater threat to U.S. national security, to our global influence in the world, and to our future than our energy dependence, that of our European and Asian allies, and the growing dependence of China and India. I don't think anything that we are doing right now is likely to make a significant impact on our dependency or theirs, and I think most of the answers lie in how we conduct our foreign policy as well as how we conduct our domestic energy policy.

I have my own typology of the various kinds of problems, which are in my written testimony. You have asked me to focus on Latin America and Africa, which is what I will focus on right now.

Obviously, both of these regions are very important to U.S. energy security. If we are going to have any diversity of supply, it has to come from someplace other than the Middle East and Central Asia. So that is Africa and Latin America.

In the hemisphere, the most important countries are Mexico and Venezuela. There are other producers. In a tight market everybody is important. But they are the strategic suppliers. In Africa, it is Angola and Nigeria, followed by Chad and Equatorial Guinea.

These two regions represent two very different kinds of threats. In Latin America, we are seeing this new rise of state control—not really a new rise of state control. What we are seeing is another cycle of political upheaval in Latin America, which tends to correspond with the price of oil. We have seen dictatorship to democracy. We have seen state control to privatization. And so we are seeing yet another of these cycles.

This has three emerging threats, three consequences for the United States. First is the loss in shareholder value for those companies who are seeing their asset values cut in half or otherwise. I think they can take it, but that is a threat. Second, we are seeing either a flattening or a loss of production growth in both oil and gas across the hemisphere. This is not new in Mexico because they have had state control for a long while. But Venezuela's new model is not working particularly well for it, and Bolivia and Ecuador are the same. But the most important consequence, the most emerging threat, is the loss of U.S. influence in the region, the declining influence the United States has and the rising challenge from Venezuela.

Briefly, on the fiscal terms, you know, we are seeing—this is part of a worldwide struggle for who gets these windfall profits from the increase in the price of oil. It impacts us because these new harsh terms, the increased government take, slows new investment and deepens instability and poverty in these countries. It is an old and pretty much a failed model. The only country which has increased its productive capacity in the last two decades, without the help of foreign companies, is Saudi Aramco. Nobody else has really been

able to make this work. And so what we are seeing is energy sector investment is virtually frozen, despite the high prices. There have been no new projects under Venezuela's 1998 hydrocarbons law. No one is going to invest in Bolivia right now when they don't know how big the losses are going to be. Ecuador's investors are all mulling legal action and suspension of their investments.

And there have been some success stories. Brazil, Colombia, and Peru have all had very attractive frameworks, but they are not the majority model. But the real political challenge comes from Venezuela, and there is no question that higher oil prices have enabled President Chavez to have enough revenue to meet his internal budget, capital budget for PDVSA, and a very generous program of assistance in lots of places the United States has not paid attention to in a while. So he is able to afford fuel assistance for the Caribbean, buying Argentina's debt bonds, helping Ecuador, even helping communities in the United States with heating oil, and high revenues enable him to do that. And he has a competing vision from the United States on a whole range of issues—on free trade, on Iran, on Iraq, on the very nature of democracy, a Bolivarian model which is sort of very different from our liberal model of democracy. And we are seeing the popularity of that model combined with that generosity. That is a political challenge, and that is a challenge to our foreign policy and how we deal with it.

I don't think that makes Venezuela a threat or a moral threat to the United States. I don't think they are likely to halt oil sales in general or to the United States despite the rhetoric, because we are an important customer. They have managed to remain a reliable supplier even while using our money from oil and products that we buy to finance a campaign which runs counter to all the major elements of U.S. policy. But withdrawing oil from the market is going to hurt their friends in new markets also. It is going to cutoff money for the government, and, frankly, we could easily handle the loss of oil from Venezuela through the Strategic Petroleum Reserve for years if it was the only disruption to take place. So I think it is an ideological challenge which we should engage on.

Africa is very different. There we are looking at the results of the oil curse. Largely, the first threat, I think, is internal unrest, mostly in Nigeria, potential unrest, I would say, in Angola and Equatorial Guinea and Chad. They are pretty stable, all of them, right now but they are countries to watch. We are seeing China and India's mercantile approach across Africa where they are trying to buy assets and lock in supply even at market prices but, as Mr. Yergin said, and Secretary Harbert, not enough to actually make a difference.

We are seeing political competition, the ability of non-market economies to combine a railroad, a regular road, a factory, along with an oil bloc does two things that are not helpful for the United States. One is it distorts the competition because neither ExxonMobil nor the U.S. Government are throwing a railroad along with bidding for an oil bloc. So it makes the competition for acreage difficult. But the other thing it does is it undermines our foreign policy. We are trying to sell transparency to Angola and they can get a \$3 billion loan from China. We are going to have a hard time exercising any leverage on that country to push more transparency.

Obviously, in Sudan, we are seeing, you know, a direct opposition to our efforts to provide regional stability. And we are seeing it in other countries as well, and I think this is somewhat immaturity on China's part in terms of seeing its own long-term interests. But it is a form of political competition, and I think that part need to be taken seriously.

So what do we do about it? I think we do different things in different places. Overall, I think the real great challenges in terms of national security are in other parts of the world. I think Europe's dependence on Russia and I think Asia's dependence on the Middle East and the undermining of our allies to support our coalitions on proliferation, on terrorism, on other things, I think that is the core of the problem. I think those are major-order threats. I think these are second-tier threats.

But I think we need to do two different things. In Latin America where there are expropriations, we need to contest them. I think the State Department's decision to withdraw a free trade agreement or to exercise any measures we have against Ecuador if they actually expropriate assets is perfectly appropriate. On the fiscal terms, I think we need to let the market respond. Oil companies have been fighting with countries for decades, if not centuries, over who gets the rent. And miraculously enough, the oil manages to get produced over time if there is access. And we have to keep it in context. In Venezuela, there is still access. In Mexico, there is no access. In Saudi Arabia, there is no access.

So if the companies take shrinks but they still get in, that is a decision they make. If they can make money, they will stay. If they can't make money, they will leave. So I would say let the market sort that out, and I think while it does impact prices and, therefore, to some extent the U.S. economy, I think foolish economic policy is not a basis for U.S. Government intervention.

What we do need is to fight back in the hemisphere. We have abandoned this hemisphere for other regions for a while. We have no positive agenda. We have no recognition of the things that have not worked with the Washington consensus. We do a free trade agreement with Colombia which wipes out Bolivia's soybean market. Do we do anything with Bolivia? Do we acknowledge the problem? No. What does Venezuela do? They say, "We will buy your soybeans." Kind of hard to criticize that policy.

The things we need to do is have something which supports our model. One is to recognize that there are social consequences to free trade, but we can deal with those. Another is to recognize that maybe our trade policy doesn't let these countries sell us the things that they make, and if we did that, they would have jobs and they would be bigger believers in free trade.

I think we need to deal with things like migration issues. I think we deal with military-to-military contacts because in a lot of these countries, the military is the primary institution, and having them understand democratic norms is important. Scholarship programs, training the leaders of the future, letting them come to our schools here, letting them get visas so they can come here I think is critically important. We have so much capital around the world because current leaders were educated in our schools, so we have to let them back in, and I think deal with things like health and edu-

cation and poverty by working through the World Bank or the Inter-American Development Bank on things like infrastructure. We have to recognize there are problems down there, and that is why people like the other model right now in some of these countries. And the answer is not that our model is no good. The answer is that we can make it better. And the answer isn't that we ought to withdraw and not talk to countries that are looking the other way. The answer is that we ought to be in there. We ought to have our programs, and we ought to explain why our model is going to work better. This is a competition, but this is a competition that I think we can win.

I hope in the question-and-answer we can talk about Venezuela because Venezuela is a complicated case. But I think a lot of the rhetoric has been overheated.

In Africa—I will not run on for too much longer—we also need a strategic approach to the region. The problems there are both security and poverty, and we need to figure out what we are for, I say largely better governance and capacity, what we are going to do to help the current problems, which is have some sort of a program on security; how we are going to do it, which is to commit a serious amount of money toward improving government capacity in these countries; and in particular, we need to pay a whole lot more attention to Nigeria. Every time the Nigerian President comes to our country or our President meets him, we talk about Darfur, the Africa Union, all the problems of the world. We hardly ever talk about Nigeria. You want to increase oil production? How about 600,000 barrels a day by dealing with the Niger Delta? You want to increase oil production by a million barrels, you could talk about security in Iraq as well.

Foreign policy makes a difference in price, makes a difference in oil supply, and I think we need a combination of things in Nigeria. We need to deal with security, deal with the right people who are providing security, because the Nigerian military has had some serious problems, and you don't want to deal with everybody over there and give them arms. We need to deal with crude theft, and we need to deal with conflict resolution. And I think the time and the patience for waiting for Nigeria alone to deal with this problem internally is over. I don't think there is any way that a Nigerian Government alone can gain the confidence of the rebel groups there without external supporters and actors, and we should not be forcing anything on the Nigerian Government, but we can help.

Now, the problem isn't that there isn't enough money. There is a huge amount of money flushing around the Delta. But the Governors have it, the Niger Delta Development Corp. has it, everybody has it, and nobody is spending it. They are not spending it on the right things. So I think this is a time when outsiders can help, but we can help with security and with conflict resolution.

We need to deal with other countries, too. Europe has a bigger stake in Africa than we do. President Chavez and President Morales travel a lot through Europe. We want the democratic message to get to them. We should be working with our European allies on a common message. We need to bring China and India into the collective energy security system, and there are ways that we can do that. These regional approaches are really only tactical solutions.

A final point, I think, and you have all mentioned it here in different ways. The only way we deal with this problem is strategically. It is changing the way oil matters in the global economy. It is significantly changing how the United States consumes it, how our allies consume it. It is a change in technology. It takes a long time, but I think as Congressman Van Hollen said, if we had started it 10 years ago, we would be in a different place right now. If we want to be in a different place 20 years from now, now is the time to start.

Thank you.

[The prepared statement of Mr. Goldwyn follows:]

Testimony of David L. Goldwyn before the House Government Reform Subcommittee on
National Security, Emerging Threats and International Relations and the Subcommittee on
Energy and Resources

May 16th, 2006

Energy as a Weapon: Emerging Threats in Latin America and Sub-Saharan Africa

Mr. Chairman and Members of the Committee, it is an honor to speak with you today about the growing use of energy as a weapon by producing countries and the risk this poses to US national and economic security. I will review the nature of this threat, the policies of the major producing governments in Latin America and Africa and suggest some policy measures the United States can adopt to ameliorate these risks.

I. The Growing Use of Energy as a Weapon

The United States is more energy insecure today than it has been in nearly thirty years. We are insecure because the global oil market is more fragile, more competitive and more volatile than it has been in decades. Global demand for oil is strong, powered by global economic growth, especially in China and developing Asia. Global supply has been constrained, first by underinvestment by international oil companies, then by production restraints by OPEC following the crash of oil prices in 1998, and now due to restrictive economic frameworks in many producing nations and internal instability in others. The consequence of this market is that nominal oil prices are high, oil producers are earning enormous economic rents from these prices, spare capacity of oil is barely 2 million barrels per day (bbl/d) in an 85 million barrel per day market and every marginal producer of oil can command global headlines by threatening actions that can impact global oil prices. Oil remains a strategic commodity primarily for transportation and we have failed to develop substitutes we can shift to. The future looks grimmer than the past. Absent a major change in transportation technology or policy, global oil consumption will nearly double by 2030 and dependence on OPEC supply will grow. The outlook for prices is bullish: so far we are consuming oil faster than we are discovering new supplies.

As dire as these projections sound, this is not the worst news. The worst news is that the energy dependency of the US, our allies in Europe and developed Asia, and the growing dependence of rising powers such as China and India is rapidly eroding US global power and influence around the world. US power is challenged in five ways.

First, the dependency of consuming nations on oil, or in some cases natural gas supply, or for access to exploration acreage in a producing country, makes them reluctant to join coalitions the US leads to combat weapons proliferation, terrorism or aggression. The most salient examples are long standing French, Russian and Chinese resistance to sanctions on Iran, or before the war, on Iraq; China's resistance to oil sanctions on Sudan; and of course long standing US tolerance of repression in the Middle East that we would have sanctioned in any non oil producing part of the world.

Second, when exporters have very high revenues, with earnings far in excess of that needed to finance their own budgets, they can act with impunity against their own people and also towards the US and their neighbors. It is costly for President Chavez to build support for his competing economic vision by providing subsidized oil and products to his neighbors or purchasing the bonds that finance their debt. It is a luxury for President Putin to renationalize his energy sector,

restrict foreign access to his pipeline system, and see production flatten while demanding open access to Europe. It is costly for Iran to have paid down its international debt and increased its foreign reserves to withstand potential sanctions. None of these governments could finance their internal budgets if oil were \$25 per barrel. Even Saudi Arabia's economic reform movement, borne in the days of \$10 oil in 1998, evaporated when oil reached \$30 per barrel in 2000. Enrichment of our competitors or adversaries harms U.S. security interests in every part of the globe.

A third problem is that the restricted access to new oil exploration acreage impedes the ability for supply to respond to higher prices from increased demand. Most of the world's oil reserves (and nearly all of the low cost easy to access reserves) are controlled by governments, most of whom do not allow the free market access to develop and exploit it. The denial of foreign exploration for oil by Saudi Arabia and Kuwait, as well as new restrictions on access to acreage in Russia, limits the ability of high prices to attract new supply. Moreover, as oil prices rise, many governments that have been open to foreign investment (Russia, Venezuela, Bolivia, Argentina, Ecuador) are now far less receptive to foreign investment, curtailing the ability of supply to respond to market signals and driving prices higher.

A fourth and closely related problem is that this "tight" market is undermining the fluidity and fairness of the market for available oil supplies and exploration acreage. New competitors like China and India, are trying to negotiate long term supply contracts (at market prices) to ensure that they have supplies in the event of a crisis or supply disruption. These countries are not cornering significant amounts of oil at this time, but the trend is counter to the market system that operates so efficiently. In addition competition is also fierce because newly developing non-market economies which must import oil (China and India) are using government subsidies to compete with private companies for access to acreage. From an economic point of view it may not matter if China loans Angola \$3 billion at low interest to gain part of an exploration block if the oil is produced. But China gains an enormous geopolitical advantage by this act which neither the U.S. nor international oil companies can compete with. During the past few years, China has demonstrated a willingness to deepen its oil trading relationships with countries whose ties to the United States are strained, such as Iran, Sudan, and previously Libya, taking advantage of U.S. sanctions policy and leading to fears that Beijing will form oil-for-arms, military-client relationships with nations under boycott by the United States. This has put China into a position of geopolitical rivalry with the United States. As Russia decides whether to build a new oil pipeline to China or to a port close to Japan, it influences the foreign policies of both nations in a way the U.S. cannot compete with.

A fifth issue is that oil dependency makes the US economy vulnerable to the price volatility that results from supply and demand shocks. The source of these price shocks in the global oil market is increasingly from internal disruptions: the Venezuelan strike of 2003, shut in production in the Niger Delta today, the Libyan and Iranian revolutions, insecurity and instability in Iraq. The system of collective energy security established through International Energy Agency, including our own Strategic Petroleum Reserve has effectively deterred producers from attempting an oil embargo. But we cannot deter internally generated threats and disruptions, only manage them.

The sources of energy threats vary by region and by country. Latin America and Sub-Saharan Africa represent two different categories of emerging threats. Sub-Saharan Africa represents the threat of supply disruption from internal unrest resulting from poor governance, past corruption, the adventurism that oil wealth attracts, and competition for geopolitical influence from non-market economies. In Latin America the emerging threat is that rising state control will limit the growth of global supplies of oil and gas by undermining the value of existing investments,

discouraging future investment or barring foreign investment altogether. The economic consequence of these trends is that the hemisphere will contribute less to the diversification of oil supply, thereby increasing the importance of OPEC supply, and over time undermine economic development in the region. The political consequences of these trends in the short run are the decline of US influence in the region to competing ideologies and the erosion of democratic structures.

I will address the strategic importance of Latin America and Africa to US energy security and then detail the emerging threats in each region and policy responses.

II. The Importance of Latin America and Sub-Saharan Africa to US Energy Security

Latin America and Sub-Saharan Africa are and will remain critical to US energy security. US energy security depends on access to diverse, reliable, abundant and affordable supplies of oil and gas. The oil exporting nations of Latin America and Western and Southern Africa provide 44.6% of US oil imports and 14.4% of global oil production.¹ They hold 14.9 percent of global oil reserves and 7.5 percent of global gas reserves.² They are far closer to the US market than the Middle East. Most African oil producers welcome foreign investment. The investment climate in Latin American countries is deteriorating as state control increases, but even in Venezuela access to exploration acreage remains superior to that in the Middle East. Additionally, the non-OPEC producers in these regions exert counter-pressure on OPEC's monopoly power.

Central and South American nations possess approximately 9.76% of the world's proven oil supplies, with 6.5% in Venezuela alone³. Mexico holds another 1.2% of proven oil reserves. The region is also a major refining center, with nearly 6.3% of the world's refining capacity. Regional refineries are designed to serve the specialized needs of US markets. The most important exporters, Venezuela and Mexico, consistently rank in the top four sources of US oil supply along with Canada and Saudi Arabia. Venezuela averaged 1.29 million bbl/day in 2005; Mexico averaged 1.59 million bbl/day in that year.

West and Central Africa, including Nigeria, Angola, Chad, Equatorial Guinea, Gabon, Sao Tome and Principe and the Gambia, today supplies 13-14% of US oil imports. According to the National Intelligence Council, this region could supply up to a quarter of our imported oil in the next decade. Sub-Saharan Africa outperforms its reserve base; it holds only 3 percent of the world's oil reserves, and 3 percent of the world's natural gas reserves. Nigeria is the largest oil producer in Africa and the tenth largest producer of crude oil in the world. In 2005, total Nigerian oil production, including lease condensates, natural gas liquids and refinery gain, averaged 2.6 million bbl/d (of which 2.4 million bbl/d was crude oil). With the help of new projects coming online, the Nigerian government hopes to increase oil production to 3 million bb/d in 2006 and 4 million bbl/d by 2010. In 2005, Nigerian petroleum exports to the United States averaged 1.15 million bbl/d, making it our fifth largest supplier.

Crude oil production in Angola has more than quadrupled over the past two decades, with production in 2005 averaging 1.25 million bbl/d. Angolan oil production is predicted to reach two million bbl/d by 2008, when new deep-water production sites are expected to come online. As of January 2006, Angola had 5.4 billion barrels of reserves. It exports 441,000 b/d to the US which

¹ http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbbl_a.htm

² <http://www.eia.doe.gov/emeu/international/reserves.html>

³ <http://www.eia.doe.gov/emeu/international/reserves.html>

makes Angola our ninth largest supplier, and our third largest non-OPEC supplier outside of the Western Hemisphere.

According to Energy Information Administration (EIA) estimates, other West African producers with offshore tracts are expected to increase output by up to 1.1 million barrels per day by 2015. According to CERA, between 2004 and 2010 West and Central Africa will add 2 to 3 million bbl/d to world production, accounting for 20 percent of new production capacity worldwide. This oil is the light, low sulfur product preferred by US refiners. Natural gas reserves, if developed in Nigeria, Angola, and Equatorial Guinea, could increase West Africa's liquefaction capacity from 9 million to 30-40 million tons per annum (world capacity is 115 million tons per annum).

III. Emerging Threats in Latin America

The US faces three primary threats in this region: the economic loss to US companies from revisions to existing contracts, the loss of production growth and diversity of supply from the region if new economic frameworks are unattractive to foreign investors, and most critically the loss of US influence from well financed political competition.

Revision of Fiscal Terms

In Latin America a wave of changes in contractual terms and dramatic changes in tax regimes in Venezuela, Bolivia, Ecuador and in recent years Argentina threatens to slow new investment and eventually deepen instability and poverty in these nations as well as destroying shareholder value for the companies invested there. Success stories like Brazil, Colombia and Peru, which have created independent regulators and obliged their national energy companies to compete with outside companies for exploration rights, provide bright spots in the region. These countries provided flexible and attractive investment terms to combat declining reserves, but are not the dominant economic models. Mexico has been a long time reliable supplier, but its upstream oil sector has long been closed to foreign investment and it is projected to decline unless this policy changes or unless the Mexican government dramatically increases the amount of PEMEX earnings it can keep for capital investment. In 2004 PEMEX paid the government 60% of its revenues. The deterioration in the investment climate for energy in these countries is primarily an economic threat, helping to lock in constrained supply and high prices. China holds less than 10% of upstream assets in the hemisphere, primarily recent acquisitions of Western assets in Ecuador and Peru. China does not, however, enjoy preferential access in Venezuela at this time.

What we are seeing in Latin America is the revision of economic terms at a time when producers and not companies hold more market power. We see Venezuela pass a hydrocarbons law that insists on a 51% share by the national oil company and a higher royalty rate. We see operations, such as those under Operating Service Agreements, which may have stretched the legal interpretation of the law when they were begun, endure strict and adverse legal interpretation when they appear to be poor earners for the government. We see taxes once renounced, like the export tax, revived so that the government can earn, in essence, a fixed 33.33% royalty.

In Bolivia President Evo Morale's May 1st Decree declared that the state would take control of all gas fields. Royalty payments to the Bolivian government at the largest gas fields will now increase from 50% to 82%. All producers are obliged to sell at least 51% of their holdings to the Bolivian government, with the value of that share to be assessed by audit and negotiation. The two largest gas fields - San Alberto and San Antonio - must give 82% of production to the state, up from 50%. The state will take 60% of production from other fields. Bolivia has left itself a open door through which it can compromise or retreat: details of new contracts are to be worked

out on a case-by-case basis. But companies were given only six months to renegotiate contracts or be expelled.

In Ecuador President Palacios seeks to increase windfall revenues from 30% to 50% and to renegotiate production sharing contracts, while still embroiled in disputes over company claims for refunds of value added tax payments rebates denied by the government.

The net effect of these developments is that new investment in these countries is virtually frozen at a time when prices should be driving new exploration and production. No new investment has been made under Venezuela's 1998 Hydrocarbons law. New investment is unthinkable in Bolivia until existing companies can determine the extent of their losses. Ecuador's investors are mulling legal action and suspension of existing investments.

The Challenge to US Policy

The second, and most important challenge in the hemisphere, is political. This is primarily a challenge from Venezuela. High oil prices have enabled President Chavez to maintain very high revenues for his government, allowing increased domestic social spending, high levels of foreign assistance, and modest reinvestment by PDVSA to countries in South America and the Caribbean. President Chavez has a competing vision from that of the United States on a broad range of issues. He opposes the US on trade integration, our liberal (versus his Bolivarian) model of democracy, on Iran and Iraq, and seeks to exclude the US from regional economic energy arrangements in South America and the Caribbean. The jury is still out on whether his economic model is viable at \$25 oil and whether his neighbors support his vision or are just accepting his assistance. But the political challenge to the US vision for the region is unmistakable.

In summary, the only strategic suppliers to the global oil market in the hemisphere are Venezuela and Mexico. Mexico is a dear and reliable ally. The only significant exporter of gas to the US market is Trinidad and Tobago. Venezuela is a competitor, but is not likely to halt supply to the US as an act of political warfare unless we embargo them first. They have in fact remained reliable suppliers of oil and products, despite the heated rhetoric reported in the media. An act of energy aggression by Venezuela against its neighbors is also unlikely at this time. Any hope Venezuela has for regional leadership would evaporate if they used their oil wealth for act of military aggression against a neighbor. Withdrawing oil supply from the market will harm their new friends and future markets as well as cutting of the government's supply of revenue. The US could, would and should use the Strategic Petroleum Reserve to redress the unlikely event of a production halt by Venezuela, or another (equally unlikely) strike by its workers. For now, the Venezuelan challenge is ideological.

IV. Emerging Threats in Africa

Africa presents different challenges. Africa has been open to foreign investment. We have seen tremendous growth in new supply from Nigeria and Angola, as well as Equatorial Guinea and Chad. Only Nigeria is a member of OPEC and it is pressing for increased quotas to meet its growing investment portfolio. In Africa, the key challenges for the US are disruptions in supply that result from internal unrest, the growing competition for political influence from China and India, and the impact of that competition on regional stability and in the long run on the liquidity of the global oil market.

Internal Unrest

Sub Saharan Africa will provide one in five new barrels of oil that come on the market between now and 2010. One of the greatest sources of oil supply interruption has also come from Africa, due to shut in production in Nigeria. The situation in the Niger Delta is deteriorating. Foreign workers have been killed and kidnapped. A Baker Hughes employee was assassinated last week. Sabotage of oil pipelines has killed hundreds of Nigerians. Recent attacks by new Movement for the Emancipation of the Niger Delta (MEND) knocked 631,000 bbl/d off the market, adding pressure to already high oil prices. MEND threatened this past weekend to bomb the Nigeria LNG plant, which supplies 25% of Atlantic Basin LNG and 10% of global supply. The threat of an oil worker strike may lead to further supply disruptions; in 2003 a similar strike shut in 300,000 barrels per day of oil production. MEND is a serious threat: its weapons, training, and general sophistication pose a formidable challenge to Nigerian security forces in the region. In addition, while estimates vary, at least \$1 billion per year in crude oil may be stolen by organized crime syndicates in Nigeria and the proceeds of that theft can impact conflict in neighboring countries, such as the Ivory Coast, or potentially corrupt the democratic process in Nigeria.

The Niger Delta conflict is a complex social, economic, humanitarian and security challenge. The Nigerian government is taking important steps to address the issue. The government recently announced the formation of a Consolidated Council on Social and Economic Development of Coastal States of the Niger Delta, which seeks to create 20,000 jobs for people from the area, largely in the security forces and the national oil board. The government plans to build a \$1.8 billion highway through the Delta, as well as make improvements in the education, health, telecommunications, environment, agriculture, power and water sectors. But there is little trust among the parties and progress on security, stability or conflict resolution will not be made without the support and participation of external facilitators, including the United States.

Endemic poverty, weak governance, and the lack of infrastructure make internal unrest a potential threat in Angola, Equatorial Guinea and Chad as well. So far Angola has remained stable, but if progress is not made in poverty alleviation, future attacks on oil facilities cannot be ruled out. Equatorial Guinea has seen at least two reported coup attempts, fomented by external adventurers who may be linked to clan rivals in the country. A coup attempt was recently rebuffed in Chad and the governments own breach of its arrangements with the World Bank on the Chad Cameroon pipeline have aggravated tensions there as well. Unless the root causes of instability are addressed, these disruptions will continue. These disruptions add volatility to oil prices, and can impact global economic growth if they are large and sustained.

Competition for Influence

The greatest political challenge the United States faces is competition for political influence from China and to a lesser extent, India. From an economic point of view, there is nothing wrong with China's acquisition of equity shares in oil producing ventures, or overpayment for exploration acreage, as long as they produce the oil. China's acquisitions in fact are capital transfers to Western companies. China's entry into new markets gives them a stake in the stability of the region. But the geopolitical ramifications of China's energy strategy are, for now, a challenge to US policies in the hemisphere.

China has had a diplomatic presence in Africa for decades, grounded on its campaign to prevail against Taiwan for recognition as the one China. But China's legitimate energy security needs have led it to adopt a strategy that competes directly with US interests. In part this has been

opportunistic, by seeking acreage that was denied to US companies because of economic sanctions. China's development of oil production and pipeline and export facilities in Sudan is an example of this strategy, as are its attempts to secure acreage in Iran and pre-war contributions in Iraq. China's energy stakes in Sudan led it to oppose Chapter VII sanctions on Sudan in the United Nations Security Council. China also offers government subsidized loans and or infrastructure projects to countries. In the case of Angola, where China has offered \$3 billion in low interest oil backed loans, international financial institution pressure for Angola to increase the transparency of the management of its oil revenues is undermined by obviating the need for Angola to seek assistance from the IMF. Chinese infrastructure to Nigeria in exchange for a right of first refusal for exploration acreage run counter to sustained efforts to promote transparency in the management of Nigeria's oil sector, by reducing the discretionary elements in decisions on acreage allocation.

China's impact on regional stability is mixed. It has become an important contributor to UN peacekeeping operations, with nearly 600 peacekeepers in Liberia in 2005. Its role in Sudan has been negative, limiting the effectiveness of UN Security council action, and contributing to the length of the conflict. To the extent that historical corruption and lack of transparency aggravate conflict in the Niger delta and other states, China's absence from the ranks of countries supporting international financial institution efforts to promote revenue transparency and management are a negative factor so far in regional stability.

China has also attempted to lock up oil supplies in Africa by requiring long term contracts as a condition of its financial support or by taking equity shares in Western operated producing fields. So far the volume of oil obtained by China is not material. But the trend of long term contracts runs counter to the modern liquid global market which operates efficiently in rapidly moving supplies to meet market demand. Over time this liquidity will benefit China as much as any other nation, but China has not yet developed faith in these market mechanisms. This is a trend to watch, but not a current threat.

Overall China is able to package diplomatic, economic, security and commercial incentives for countries that gains them political leverage. Neither the US government, nor private companies are now prepared to compete effectively with this kind of combination of incentives. China's rising influence, combined with a lack of priority on democracy, transparency, environmental protection or conflict prevention directly challenge US policy.

Policy Recommendations

The greatest challenges to U.S. national security from oil dependency come from our loss of influence with European and Asian consumers who should be our natural national security partners, the immunity and impunity of nations like Iran who use oil as a shield, our inability to deter the erosion of democratic institutions in oil powers like Russia and Venezuela, or the promotion of stability and democracy in smaller producing countries. It is these latter two challenges that are most salient in Latin America and Africa.

Latin America

In Latin America we are seeing the rise of state control or forced revision of contracts for two reasons. One is that trade liberalization and increased GDP growth have not led to poverty alleviation or inclusion of excluded minorities in countries like Venezuela, Bolivia, Ecuador and Peru, leading to a rejection of liberalized markets and the Washington consensus in many countries. Another is that growing populations have increased the pressure for governments to

raise revenues in economies that are still resource dependent, so governments are appropriating the best available source of cash, regardless of the long term consequences.

The US should protest violations of contracts or expropriations where these takes place and deny benefits such as bilateral trade agreements to countries that do not respect the agreements they have signed. The US suspension of free trade agreement talks with Ecuador is a good example of this. But the market will either tolerate or punish the economic actions of governments that raise tax and royalty rates or other fiscal terms adversely. If companies can make money under the new terms offered by Venezuela or Bolivia, they will pursue these opportunities. If not, and if countries do not spend their own capital to develop their resources, then production will fall, their revenues will shrink, and the popularity of their programs will shrink with them. This may lead to higher energy prices, but foolish economic policy is not a basis for US government intervention.

What we should have is a positive agenda in the hemisphere, one that recognizes the need to improve education and infrastructure, addresses the negative social impacts of trade liberalization, and offers the respect and cooperation of the US to those countries that work with us. In countries where we face ideological competition, like Venezuela and Bolivia, it is crucial that we do not abandon the field. We need to increase our diplomatic engagement. We need to address legitimate issues like poverty and advocate how our model can address them. Examples of this are addressing trade barriers to agricultural imports, expanding educational opportunities in the U.S. for future leaders and improving the visa applicant process, expanding military to military contacts, especially exchanges under the International Military Education and Training Program, dealing with migration issues with Mexico in a spirit of respect and fairness, supporting World Bank and Inter American Development Bank infrastructure programs in the hemisphere, supporting the development of civil society and the capacity of democratic institutions and treating our relations with our hemispheric neighbors as intrinsically important, not as litmus tests of loyalty to the US on Iraq or other issues external to the region itself.

I believe that Bolivia's recent actions will mark the nadir of the turn toward repudiation of contracts. Countries like Bolivia and Ecuador are too poor and frankly too insignificant to global energy markets to sustain the kind of behavior they are engaging in. Powers like Brazil and Argentina can communicate this to Bolivia better than the U.S. can. The US should maintain dialogue with Bolivia and give it our best, even if unwelcome, advice and cooperate where we can.

Venezuela is a more complicated case. Venezuelan governments prior to the Chavez government governed poorly, practiced corruption, ignored poverty and excluded minority sectors of its society. The Chavez government came to power determined to return control of energy policy from the national oil company to the government ministry, to reclaim some of the oil rents held by the national oil company for the government's own account, and to change the economic terms of its acreage allocation from those set when oil was \$10. This is a policy the US would support in any other country. The government has spent lavishly and allegedly unwisely, on social programs, but this is what we pray most African government would do with their own oil wealth. The famous strike of 2002-2003 was a battle between the national oil company and the government and the government won. I cannot imagine the US supporting the PEMEX in a battle against the Mexican Government for control of the PEMEX Board of Directors. The US rhetorical support for the coup that displaced the President for a day was foolish, destructive and devastating to our bilateral relations.

Where Venezuela has gone wrong economically is by changing contract terms with impunity and hostility rather than by negotiation with companies who have been its partners for decades,

invested billions in its energy sector, and created the production that now enriches the nation. The manner in which the recent changes have taken place has been short sighted, destructive and unnecessary. Venezuela has changed its interpretation of its own tax laws, but it is provocative and disingenuous to accuse companies of being tax cheats as a consequence. Time will tell whether the attractiveness of Venezuela's tremendous oil and gas reserves overcomes the pain inflicted by the way these changes have been made. Oil companies tend not to be emotional about these issues.

Where Venezuela has gone wrong politically is by using legal methods to restrict freedom of the press, prosecution to intimidate political opposition, and constitutional assemblies to unbalance formerly balanced institutions like the Supreme Court and national election commission. The regime itself, helped by the failure of a political opposition to mount a campaign describing what it was for, and high oil prices sufficient to fund the government and external programs at the same time, does not appear to need to use either tactic to win large majorities. These internal governance issues should be the focus of a regional policy, which includes, but is not led by the United States. We should have objective assessments as to whether Venezuela's actions are undermining any other important US security interests. Venezuela has positioned itself as an ideological competitor to the United States in the hemisphere. We need not and should not treat Venezuela as an enemy; we should however, try to compete. We should also end our dialogue via the media and resume the dialogue between our senior foreign affairs, commerce, energy and cultural officials. We should work with Europe and with hemispheric partners to reinforce a message of respect for democratic institutions.

Africa

The US can do a great deal to advance security, stability and energy development in Africa if we pay attention to the region and focus on internal issues. Two detailed sets of recommendation are contained in two task force reports I had the privilege of co-chairing with Stephen Morrison at the Center for Strategic and International Studies (CSIS). The reports are titled "Promoting Transparency in the African Oil Sector: A Report of the CSIS Task Force on Rising US Energy Stakes in Africa" (CSIS: March 2004) and "A Strategic Approach to Governance and Security in the Gulf of Guinea: A Report of the CSIS Task Force on Gulf of Guinea Security" (CSIS: July 2005).

In briefest summary we recommend that the US take a strategic approach to the region, seeking to improve both the governance of the countries and their security. We should improve our diplomatic capacity in the field and coordinated policy here in Washington. We lack solid intelligence or even a presence in the Delta or the North. We should have a robust regional stabilization and governance account, of approximately \$50 million per year, to resource democracy promotion, transparency, anti-corruption programs, and enhanced security. The US is not a significant player or policymaker in these international efforts now under way. Our program support should go not just to government but directly to civil society groups, to enhance their ability to participate in democratic institutions and to demand accountability from their governments. The US should prioritize crime prevention, and create a regional capacity to detect and interdict oil smuggling. While the focus of these efforts is again in Nigeria, the US should work with Angola and Equatorial Guinea to improve their rudimentary customs and coast guard capabilities.

The US needs to dramatically enhance its bilateral engagement with Nigeria. Nigeria is a key emerging economy, the most populous nation in Africa and the key to West African regional and economic prosperity. For too long US policy has been focused on Nigeria's external policies –its

support for peacekeeping, its custody of Charles Taylor or its role in the African Union. We need a focus on conflict resolution in the Niger Delta, on support for Nigeria's landmark anticorruption and transparency efforts and its attempt to improve government capacity. Specifically we should: 1) facilitate a security response in the Delta, 2) address the crude theft problem by support the modernization of oil measuring systems and a smuggling interdiction program, and 3) actively engage in dialogue on conflict resolution and infrastructure development in the Niger Delta.

The threat that MEND poses requires a serious but not heavy handed security response combined with an intensive conflict resolution effort. The United States, perhaps in tandem with other countries acceptable to Nigeria, should help to establish and train a Nigerian force to protect offshore and onshore oil rigs, contingent on mandatory human rights training. This force would protect energy infrastructure from piracy or attack. The increased lethality associated with MEND's sophisticated tactics calls for technical and training expertise for Nigerian security forces. Security arrangements are currently inadequate, characterized by the use of non-professional personnel, poor logistical support and insufficient number of appropriate platforms. The situation is further compounded by poor communications network among the various security agencies and stakeholders in the oil and gas industry.

Second, to deal with the theft or "bunkering" of oil from Nigeria's pipeline system, the US should engage with Nigeria on the design of the modernization of its metering systems. Pipeline infrastructure is dated in most parts of Nigeria and lacks regular metering points to measure the flow of oil at frequent intervals. This matters because the Nigerian government and oil and gas companies are unable to measure exactly how much oil is stolen between the point of extraction and Nigerian ports. A modernized measuring system also allows the government to set a standard point along the supply chain where royalties and taxes can be calculated. Without modernization, the discrepancies along the supply chain will continue to thwart transparency efforts. The US should offer Nigeria a pilot interdiction program, alone or through NATO, to attempt to interdict crude smugglers and model the kind of doctrine and equipment Nigeria can acquire on its own in the future.

Third, the US should support Nigeria's efforts to peacefully resolve the conflict in the delta. The US should work with Nigeria to form a contact group of trusted nations to assist in an intensive conflict resolution and reconciliation program. The US, the World Bank, and the European governments should also work with the Consolidated Council on Social and Economic Development to develop a credible plan for infrastructure development in the Delta region. Violence in the region is largely due to the failure of natural resource revenues to reach the people in the form of social and economic development. Building roads for the transport of goods and services encourages economic growth by providing access to new markets. External guarantors will help gain the confidence of legitimate local groups and marginalize illegitimate criminal syndicates.

External Policies

In addressing challenges in Latin America and Africa, the US cannot go it alone. Europe has greater investment in Africa's oil sector than the US. The US European Dialogue should focus on democracy promotion and conflict resolution in both areas. We must also begin a dialogue with China and India. Both are great powers and we share an interest in stable energy supply and conflict resolution. As these powers grow on the international stage we need to talk to them about their policies and how they interact with the IMF, World Bank and international multi-stakeholder efforts like the Extractive Industries Transparency Initiative.

While it is a topic for another hearing, it must be said that regional approaches to combat the use of oil as a tool of foreign policy are tactical measures to manage the near term consequences of the impact of oil wealth on many oil producing nations. A strategic approach to this program must focus on reducing the importance of oil as a global commodity. While this is a twenty or thirty year effort, a strategic energy policy that invests in new technology, uses tax and regulatory policy to accelerate the deployment of alternative fuels and vehicles and drastically increase fuel efficiency, and expands the system of collective energy security to include China and India is the only way to protect American power and influence for the long term.

Mr. ISSA. Thank you. I want to thank all of you for your testimony.

Mr. Goldwyn, I could not agree with you more on a great many things you said, particularly your analysis of the internal challenges faced both in South America and in Africa and how they relate—or how our foreign policy, even when we are trying to do something right in one area, can adversely affect it. I think that was very insightful.

Perhaps because of last night's speech of the President, I did focus on one word. You threw in the statement about migration, but did not say much beyond it. Why is migration an issue—you were talking about South America—in the oil trade situation?

Mr. GOLDWYN. It is about Mexico. Mexico since its revolution has had a severe allergy to foreign capital. Mexico's production has flattened, and their growth looks pretty grim in the future unless they can muster enough external capital, capital somehow, to develop what would be very lucrative resources in the Gulf of Mexico on their side.

The only way you do that in Mexico, I think, is to give Mexicans confidence that the changes that will come will not undermine their ability to control their natural resources, their ability to run the country. And a lot of that has to do with whether they are scared of us. And so how we deal respectfully with a country like Mexico, when we sell integration through NAFTA or integration through gas and electricity, we could sell integration through energy. But they have to believe that we are not going to squash them by the partnership. You know the expression when the United States sneezes, Mexico catches cold. And treatment of—one of the main ways they get remittances, one of the main ways their citizens are treated is a huge part of the confidence that they have. And so I think migration is probably—when we talk about what other countries are interested in, migration is what Mexico is interested in. If we want them to do what we want, we have to deal with what matters to them the most.

The other thing I would say that would make a difference is convincing the national oil company and the Mexican legislature that they can control their resources and grow that, too. And that is actually where a Congress-to-Congress dialog might make a big difference, because it does not always work coming from the executive branch.

Mr. ISSA. I appreciate that, and I did think that was probably where you were going.

It is interesting for this member that we focus, rightfully so, on Russia, which has actively used oil and petroleum transportation as a weapon. There is no question you can see their fingers all over a number of activities. But in Mexico, where 1 out of 10 people born in Mexico now lives in the United States, the largest source of revenue to the Mexican economy are Mexicans living in the United States sending money home.

It is interesting that, in fact, you would note that there is a potential oil weapon from a country that has benefited by its existing migration, both legally and illegally. I think that is more than what we can deal with here today, but it is certainly a thought-provoking—

Mr. GOLDWYN. Mr. Chairman, I didn't mean to imply that Mexico would use oil as a weapon. I don't think that they would, and they haven't. But Mexico's ability to be a much greater supplier to the U.S. market, to be a much greater contributor to the global market, would be dramatically enhanced by a better relationship between our two countries. It is their allergy to foreign capital which is going to undermine their economy, and to some extent it won't be so helpful to us either. I don't think Mexico under any government would intend to use oil as a weapon.

Mr. ISSA. I see the difference. I do remember, though, that rather than take U.S. investment, they flared and continue to flare their natural gas because they are simply not going to allow their constitution to allow for direct foreign investment. It is interesting, though, that they changed their constitution to allow American citizens of Mexican ancestry to vote, which I find kind of interesting. If I were concerned about my sovereignty, I think I would be most concerned about people who have adopted a new country voting in the old country. It is sort of the Alamo in reverse.

But before we run out of time, Ambassador, getting back to Russia—a known bad actor in the use of natural resources, particularly oil and natural gas—do you believe that they are accomplishing today, particularly with Germany and other Western European allies, the kind of pipeline imperialism that they couldn't succeed with in the Soviet era? And is that because, post-Soviet era, the purchasing became easy to do while, in fact, more or less Russia is still as evil as the Soviet Union, even if no longer the same empire?

Mr. SMITH. Well, I would say that during the Soviet period, the pipelines that were all set up—I mean, Russia dominated—it was the Soviet Union, but it was really Russia that dominated all the pipelines that went to the former Republics, the 15 Republics. They dominated the energy markets in the Warsaw Pact countries. It was just a given that they had control of all of that. We have only focused on it since the break-up of the Soviet Union, and I think rightly so.

But beginning in 1990, Russia used the energy weapon, cutting off supplies to the Baltic States in an attempt to crush Baltic independence. In the winter of 1992, I was there. I had to sleep in my clothes in first-class hotels in Riga and Tallinn because the energy was cutoff in an attempt to prevent these countries from forcing out the remnants of the Russian soldiers.

I have seen this firsthand. When I was the Ambassador in Lithuania Transneft cutoff the supply of oil nine times in 2 years in an attempt to keep an American company from buying the Mazeikiiai refinery.

Part of why Russia is getting away with these acts is because Western Europe and the United States haven't paid attention to Russia's decisions. Western Europe didn't care what happened in the East, in Central Europe, even though Latvia and Lithuania are now members of the European Union, and members of NATO. They are officially members of the European Union. The European Union really doesn't pay attention to the fact when Russia cuts off the energy. It is when Russia cuts off the energy to Ukraine, to the pipe-

line which goes on to Western Europe that people begin to focus on this.

They have not paid attention, and the fact that the Germans are willing to go ahead with this undersea—the Baltic pipeline system even to the detriment of their allies, their new allies in the EU to the East, and I think to the detriment of the German consumer in the long run, I think is a pity. And Russia has a lot of clout. It is the German industrialist association, the German banks and German industry which, in fact, are pushing these pipeline deals. I have listened to them tell me why it was all great, and the Northern pipeline system, which they have supported, will cost over \$10.5 billion versus less than \$3 billion for a Yamal II pipeline, which could go through the same route as Yamal I.

Mr. ISSA. OK. I will save the rest of my questions until after the other Members. Mr. Lynch.

Mr. LYNCH. Thank you, Mr. Chairman.

First of all, thank you for helping the committee with its work. Dr. Yergin, I am a big fan of “The Prize,” your Pulitzer Prize-winning book. I actually had worked at the Shell Oil Refinery as a young man, and I have to say that I learned as much from your book about the oil industry as I did from actually working at a refinery, which says something.

We talked about just the convergence of the whole energy question and foreign policy in a number of countries, and, Mr. Goldwyn, you mentioned a couple of examples: Angola, where, you know, the Chinese are going in, the Chinese Government is going in and giving massive loans, and in return I can imagine they are going to get some type of security in terms of a commitment to supply China with oil. It is a natural assumption.

We have situations in Nigeria, for instance, where the Nigerian Government, with all that instability, has been looking to the United States and U.S. companies to help them develop a depot so they can export natural gas. They just do not have the infrastructure, they do not have the technology, they do not have the resources to do that.

And it is beyond, as you have said, the capacity of ExxonMobil to go in there and build a railroad or a huge facility like that. It just is not going to work. But it is not beyond the U.S. Government to help that along in a significant way. I know that during the Second World War, Dr. Yergin, you talked about the collaboration between FDR and the Interior Secretary at the time, Harold Ickes, and they created this Petroleum Reserve Corp., where they actually envisioned—it was shot down by the industry at that time because they did not want the Government in the oil industry. But there was definitely the formation of a Government entity that would sort of facilitate these massive projects.

Of course, at that time, they were interested in actually getting into the game and becoming an oil company, the Government, and that would not fly, and there are obviously some antitrust issues for a collaboration between multiple oil companies. But isn't there a role here where we can facilitate some of these larger projects to help these countries develop their own natural resources? Naturally, we're getting commitments to the United States for future supply contracts, but also to head off what China is doing. They are

locking up Kazakhstan and they are over there in Angola, as you have said, and they are in Nigeria. They are building soccer stadiums in the Middle East. They are all over the place, and they are really making a very aggressive attempt at locking up future energy supply to fuel a very hot economy there.

I can't help but see this as a zero-sum game, that there are limited reserves, limited new proven reserves coming online, and yet you have China and the growth there responsible for 40 percent of the world's growth in demand for oil. And we have not even mentioned India, which is on a similar track.

I just think there has to be a role here for government to play to head off what China is doing. I do not see China as hostile, but I see them as a competitor for a very limited resource. I think we have to step in here because we cannot rely on ExxonMobil, these private corporations that owe their allegiance to their shareholder. I do not believe we can trust these oil companies to put the United States interests first.

Mr. GOLDWYN. I think there is an appropriate role for the Government. I think the first thing, though, is for the countries to realize that they will realize the greatest return for their acreage when they put it out for bid. They are likely to get more money for that, and if they want a road or a railroad or a soccer stadium, they will get the best price for that by tendering for that project also. And what they ought to do is not lump them together in a way that is relatively opaque and probably has them overpaying for what they are getting. But they ought to be transparent in the management of their oil sector, and they ought to be transparent in their Government procurement. That is the first lesson. And having the United States step up with financial resources and rhetorical support for something like the Extractive Industries Transparency Initiative, those corruption efforts which countries like Nigeria are now trying to implement, would be a first step because the countries will get more money.

The second thing we can do is work through the World Bank to provide infrastructure loans, and they do a fair amount of that, and capital so that they could build power plants, distribution lines, roads and things like that. In order to be eligible for those loans you would have to clean up your act. I think that is the way to do it. We need to offer a program to help these countries with infrastructure but that's conditioned on their conducting their oil sector in a transparent manner. I think if we do those two things, then in terms of the bidding the Chinese will have a chance to bid. And if they want to overpay for those resources, God bless them. As long as they produce the oil, I don't think we care. But let's get them out of the business and get the countries out of the business of these opaque combinations of these two deals.

Mr. LYNCH. Dr. Yergin.

Mr. YERGIN. Thank you, and thank you for your kind words about "The Prize." I thought the quote that you found from Mr. Schumacher really did put a framework for this hearing.

I go back to the question you raise about how to approach this is very central, and I think the approach with the Chinese and others should be to be both prudent but collaborative at the same time. I think that the companies have the capacity often in part-

nerships to enter into \$5, \$7, \$10, \$12, \$20 billion projects. A critical thing that the U.S. Government could do is concentrate on the investment framework, the stability of the investment framework, because that is where the investment—that is part of the problem now in Venezuela. Who is going to invest when you do not know what the rules will be tomorrow?

I have thought a lot about the question, Is it a zero-sum game with the Chinese? And looking at it, trying to see how they see it, and recognizing that for our times, one of the biggest questions that will define the era is: How is a rising China accommodated in the world economy, in the world political system? And this is at the very cutting edge of that question.

I think at the end of the day, it will be shaped—the players, the actors will shape the outcome to that question. I don't think it needs to be a zero-sum game because, as David Goldwyn said, the Chinese are investing, if they are putting their dollars or their yuan into increasing supply, after all, there is only one world oil market, we are better off. And I would be a lot more concerned if this country, with \$900 billion of U.S. reserves, was not spending money on energy development, given where it is going. And I think in due course we will see these Chinese oil companies, which are owned both by the Chinese Government and by Americans' pension funds, in many cases—and, in fact, joining joint ventures with other companies, as is the way companies work today. I think the question of what is happening in Africa is overall—and the question of political influence is part of the question, but is a somewhat separate question. I think the more investment, the sooner, the better.

Mr. LYNCH. In conclusion, Ambassador, I do not want to leave you out here. I think you have offered much in this debate. But I would like to throw a wrinkle in here, and that is that if we are talking about strict game theory, I guess I would not say it is a zero-sum game because the wild card here is technology. If technology can allow us to get shale oil in a productive and cost-effective manner, that makes it different. If we developed an engine that gets 100 miles per gallon, then technology obviously changes the rules of the game.

But I do want to ask you, every time we get one of these shocks, it seems that the standard or the typical response of Government, if it is on the demand side is—for instance, we just had a proposal to give everybody \$100 because gas went to \$3 a gallon. Well, that is just going to fuel \$3 a gallon. That is what that is going to do. It is just going to allow people to buy more gas at \$3 a gallon. So it really is inflationary in some respects.

Is there a Government policy that you would look at—and I asked this question to the other two gentlemen—in a different way. What do you think should be the one thing that perhaps Government is not doing right now to address this problem in the near term?

Mr. SMITH. You mean the question of Russia or—

Mr. LYNCH. Or intervention, yes, intervention.

Mr. SMITH. Well, I am not an energy expert; obviously these two gentlemen are more of an expert. But, it is the realities on the ground that these other governments will react to. We can com-

plain, we can say we are going to do things, but until we take some action which has an effect on world market prices—there is a very interesting article, I would recommend. Tom Friedman has written an article that was in the latest edition of *Foreign Policy* in which he includes a very crude graph, where he traces the increase in oil prices and the increase in authoritarianism around the world. And I was kind of taken by this graph. It is very good.

But until we adopt measures which reduce the demand or through technology increase the supply in the United States, the Russians or Mr. Chavez have every reason to think they have the upper hand. I lived in Venezuela, I lived in Ecuador and Norway—three oil-producing countries—and it is natural that they think that they have the upper hand at the moment, with oil prices the way they are. And we are not doing much to address that issue.

Once oil prices start coming down, I think we are going to see much more accommodation on the part of these countries. We may see Russia suddenly decide, well, maybe we will open up our pipelines to other users. Maybe we will sign the Energy Charter with the European Union. And maybe we will be a little bit more open as far as foreign investment—American investment in the Sakhalin area or the Shtokman field in the Barents Sea. These are things which will influence their behavior.

Mr. LYNCH. OK. Thank you, Mr. Chairman.

Mr. SHAYS [presiding]. I thank the gentleman.

Mr. Van Hollen.

Mr. VAN HOLLEN. Thank you, Mr. Chairman. Thank you all for your testimony. I think this is a very important issue and a long overdue discussion in our country, and I have a question for each of you gentlemen, and maybe I could just start with Dr. Yergin.

You point out in your testimony the tightness of the international oil market and specifically talk about Iran's role in global oil markets and point out that any loss of any significant supply, including from Iran, would be a very serious concern. In fact, a lot of people believe that the \$70 price for a barrel of oil now already takes into account certain nervousness about what Iran may or may not do.

Now, one of the earlier witnesses, Assistant Secretary Harbert, when I asked her what would be the impact of a total cutoff, hypothetically, in Iranian oil supply, seemed to have a fairly sanguine view that we were prepared to deal with the price impact. So my question to you is: Is that a rosy assessment or, in fact, do you share the view that we are prepared, we have this contingency plan in place, and it is not going to have much of an impact?

Mr. YERGIN. In January I participated in a simulation at the World Economic Forum in Switzerland with a disruption of oil and the price got to \$134 a barrel, but somehow the world went on and the sharing mechanisms worked.

I think there is probably \$10 to \$15 of security premium in the price right now. I think we have seen when the Iranian President issues his statements, the price of oil can move \$1 or \$2 or \$3, which tells you how tense it is.

Were we to lose another half million barrels a day for any period of time or a million barrels a day for a short term involving Iran, Nigeria, or some other part of the world, we would probably be

looking at \$85 or \$90-a-barrel oil unless the Strategic Reserves were used. And my bet is that they would be used pretty quickly at that level.

It seems to me that it has only been in the last 6 or 8 weeks that those dots are starting to be connected to the tightness of the oil market on one side and where Iran is in its nuclear program on the other side, and where these dots—where these lines are going to come together in a year.

So, yes, we could deal with it, and I think it is important to recognize it is a two-way street. Iran needs those revenues, too. It needs its imported gasoline. It has its vulnerabilities. But there is plenty of room here for misunderstanding in both directions. I think Iran would pay—Iran does not have the reserves that Russia has, for instance, that would enable it to withstand it. But things can happen. Or what could actually cause more problems is not a cessation but let's say you lose 500,000 barrels a day. This would result in smaller interruptions, and the price would ratchet up without a sense of outright crisis. Then we could be looking at those higher prices.

So I think we are moving into a dicey period, and the sooner we have alternative supplies, the sooner we take the pressure off the market with demand on a global basis, the better we will be. I think that high oil prices have a high geopolitical cost for the United States and tie our hands to some degree in terms of our international relations.

Mr. VAN HOLLEN. Thank you.

Ambassador Smith, you mentioned talk in your testimony that, "The Ukraine-Russian 'gas war' in January was only a continuation of Russia's petro-politics, that started with the fall of the Soviet Union in 1990." And then you point out, "The U.S. and Europe's tolerance of these coercive policies and non-transparent business practices have helped signal to the Kremlin that the West needs Russian energy exports more than Russia needs the West's export revenue, energy financing and technology." And I agree that we have sent that signal.

I guess the question is: In the context of all the different issues we are dealing with Russia about, how do we send that signal? In that context, I would just point out an article about a week ago that talked about President Bush making a telephone call to Putin, saying he wants Moscow's help on an array of issues, including preventing Iran from developing nuclear weapons. It says, "Putin has joined Bush in pressuring Tehran but resists U.N. sanctions. Bush called Putin on Monday"—this is more than a week ago—"to lobby him on Iran. But during the call, Putin changed the subject and pressed Bush to finish negotiations allowing Russia into the World Trade Organization. Bush vowed to do so 'soon.' Aides said there was no quid pro quo." It goes on.

I guess my question to you is: If we agree with your assessment that we have failed to send a strong signal, what levers should we be using, given the whole mix of things we are trying to work with the Russians on? And to what extent should we use the upcoming July 15th WTO talks to say very clearly to the Russians on the issue you talked about, if you don't have more transparency in the energy area and in these other areas too bad with the WTO?

Mr. SMITH. Well, we have to have a little bit more consensus among the G-7. If we don't have consensus among the G-7, it is going to be very difficult to convince Mr. Putin to come along.

One of our problems now is that everybody is going in their own direction. The United States is a little bit too optimistic about the arrival of Russian LNG from the Shtokman field in the Barents Sea. The Europeans are a little too optimistic about the increased gas production in Russia and what they are going to be able to pull in.

The question is what we can do. I mean, we have leverage. Russia wants downstream access to American and European resources. They want to own companies, downstream companies in Europe and the United States. We should demand that Russia treats our companies just like we do theirs. They can buy 100 percent of Getty Petroleum, and yet we cannot buy 100 percent of a Russian company.

The non-transparency, the whole G-7 should demand, for instance, that Russia stop exercising its coercive policies on Uzbekistan, Kazakhstan, and Turkmenistan when it comes to gas, as well as trying to prevent these countries from selling gas directly to Western Europe.

For instance, Kazakhstan is trying to purchase the big oil refinery and port facility in Lithuania, a very big facility, the biggest facility on the Baltic coast. And Kazakhstan had signed an agreement with Transneft, the Russian monopoly supplier of oil. They had a right to ship oil to the Baltic coast in sufficient numbers to satisfy the Lithuanians so they could buy that refinery.

When Moscow decided, "no, we want to buy that refinery, we don't want that to get in the hands of the Kazakhs," they broke that contract. They unilaterally broke that contract. Well, that and the tying up of pipelines from Central Asia I think is a violation of the WTO and Russia wants WTO membership. We have a good reason to want additional Russian energy resources. We just have to make sure that the Russians understand that there is a quid pro quo here. It is not open season, and I am afraid the Germans have given the wrong signals. We are giving the wrong signals when we talk about how desperate we are to get additional Russian resources. And we give signals to Russia all the time that we are desperate for that LNG to come from the Shtokman field.

Mr. VAN HOLLEN. Thank you for that answer.

Mr. Goldwyn, you mentioned in your testimony that you thought that there had been overheated rhetoric with respect to Venezuela. If you could elaborate on that statement, and maybe just flesh out a little bit more what exactly you think the United States should be doing with respect to Venezuela, given the important connection you mentioned between our foreign policy and the whole energy supply and energy market issues.

Mr. GOLDWYN. Thanks for the opportunity on that.

I think the rhetoric has been overheated on Venezuela in a couple of ways. It has been overheated, frankly, on both sides. The Chavez government came in following a succession of Venezuelan governments that were not very democratic, pretty corrupt, and pretty poor at governing. They set out to do a lot of things that we would probably support in any other part of the world, which is put

the government in charge, not the national oil companies, spend more social spending, which we tell African governments to do all the time. They set out to change the terms and change the transactions essentially that were structured when oil was \$10. That is the kind of stuff other governments do.

Where I think things went off the rail is that the way those renegotiations were done on the fiscal terms was pretty brutal and did not treat the companies as partners. It was a bit imperious, even if they had forecasted it. So that has not helped a lot.

And I think the Chavez government has also been on a winning streak in terms of its own popularity for lotteries, including pretty much the collapse of the internal opposition to mount anything. But then it has taken a number of steps in terms of the press and in terms of prosecution of the opposition, which have been egregious.

I think what has happened is the United States has basically stopped talking to Venezuela. We stopped a couple of years ago when there was a coup we more or less supported for a day, after decades of supporting democracy in the region. We handed that government not only some legitimate insecurity, but a bogeyman that has been enormously helpful.

And I think the first thing we need to do is stop talking in the media and start talking directly.

The second thing I think we need to do is to talk at a technical level because we have had a long relationship with Venezuela. It is going to be there for a long time, and we have some common interests.

The other thing we need to do is we need to talk to both Europeans and countries in the region about the things that we have in common. We have spent a lot of attention on Venezuela talking about the fiscal terms and how they are treating the companies and stuff like that. As a government, that is not our problem. As a government, our issue is democratic institutions.

Now, if we hold out that if they just go back to the old ways life would be grand, then we are not going to have any resonance with anybody who actually lives in Venezuela, because the old guys were not a whole lot better than the current guys. We need to talk about things that need to happen and things that are reasonable. We have to make it clear that we are not in favor of regime change in Venezuela, that the United States is not about to attack Venezuela so you don't need to arm everybody with a Kalashnikov in order to do it. But we have issues. We have issues with China. We have issues with Russia. We have issues with all kinds of countries. We need to engage.

And that is why I say that our relationship with Venezuela right now is that we are competitors on the model. We are competitors over legitimate problems of poverty and social injustice and lack of infrastructure. So we need to pick up our game on that and stop demonizing Venezuela. The Venezuelans will have more political space in the country to debate what is going on there and whether they like it, rather than focusing the entire debate in Venezuela about the United States. I don't think that helps our interests or theirs.

Mr. VAN HOLLEN. Thank you. That is important advice, and they are clearly winning the PR game. I think your advice about some more quiet discussions probably would go a long way.

Thank you, Mr. Chairman.

Mr. SHAYS. Thank you.

I am really excited to have this opportunity to learn from the three of you, and I appreciate you being here. I want to first ask you your reaction to the answers of the first panel regarding whether we are at a point where we have few margins, and that we are in fact very vulnerable to supply and demand issues. I would like to know your reaction. The general sense was we are not vulnerable really, I read it as we are not vulnerable really because we have—first off, I felt like they did not respond. Why would I be telling you what my reaction is? I want to know what your reaction is. Go right down, I mean, you were all three here on the first panel. And what I request are candid answers.

Mr. YERGIN. I wrote down your comment that your sense is that we are totally and completely vulnerable. I was mindful of that when I began my remarks. The oil market today is tighter than it was on the eve of the 1973 oil shock, so this is a vulnerable market.

We have a series of mechanisms to deal with shocks, and we can see the potential for new shocks coming in front of our faces. So I think the risks are higher. We can manage them to a degree. The strategic reserves are not endless. They might give us, depending what the problem is, 3 months, 6 months, a year or something like that. There is a whole other range of measures, demand restraints and so forth that would come into play if there was a serious crisis. That is what I was trying to suggest, is a whole framework of issues about energy security that don't have to do with whether we are running out of oil or not, but managing the reality.

I just want to recognize that these things do move in cycles. We are not going to have, I believe, high prices forever, and that we will see that markets will respond. We will see a buildup of supply. We should see demand. And things get more back into balance. The question is, is that a 2 or 3-year or a 5-year process, and then the longer term questions that Congressman Issa raised of technology.

But right now, we are in a tight place, and if something else happens or something more happens, it would register in much higher prices. We don't have the maneuverability that we would have even 2 or 3 years ago. Let me just say in 2003 Nigeria lost—David will know the number—but I think it is 800,000 barrels a day, more than the 550,000, and it didn't matter. It didn't have the kind of impact that kind of loss would have today. So I think it is recognized that there really is a heightened degree of vulnerability. We have to look at the range of tools that we have to deal with it.

Mr. SHAYS. You said it happened in the past but—

Mr. YERGIN. It happened in 2003, Nigeria had a similar type disruption, and more supplies were lost, 800,000.

Mr. SHAYS. And today it would have impact.

Mr. YERGIN. Today it is 550,000, and it was 800,000, but that 800,000 really was not reflected in the price because there were other supplies to go to. Today there is nowhere else pretty much to go to in the short term.

Mr. GOLDWYN. Mr. Chairman, if I can take that 1 second. I think there is economic vulnerability and then there is national security vulnerability. I think in terms of national security we are very vulnerable, and all the trends are that things are getting worse. We are vulnerable because there are no short-term answers that will reduce our or anybody else's dependency. The second reason we are vulnerable is we don't have a plan to change that has any serious impact of making a difference. And it matters in ways that are really important. It matters on Iran. It mattered before on Iraq. It matters on Sudan. It matters on things that actually count.

Economically, as Dr. Yergin said—and he wrote the hymnal from which we all sing—we have tools to deal with economic vulnerability. We are a wealthy enough country, their prices go too high, we could change LIHEAP to help people at the lowest end of the economic scale pay for their gasoline. In my view, frankly, \$3 gasoline is the greatest national security benefit that we have had in two decades because as a Government we are incapable of actually doing anything to promote alternatives in technology or anything else, and prices having a huge effect.

If you left it up to me—and I would never win a congressional race anywhere—I wouldn't let the price of gasoline drop below \$2.75 for the foreseeable future. I would put a floor on it because the answer is going to be making alternative technologies commercial. There isn't a check the Government is going to write that is going to make this work. They have to believe that they can make money turning something else into fuel, or making a different car that is going to beat \$2.75 in gasoline.

Mr. SHAYS. I happen to agree with you. When I first ran for Congress, I suggested having a 50 cent gasoline tax. I suggested in the last campaign, in a close race, that we needed to have a gasoline tax for revenue for infrastructure, but I also saw it having impact elsewhere.

What surprised me is we as elected officials will sweat a 2 or 3 or 4 or 5-cent increase in the gasoline tax, and yet the public absorbed \$1, 100 cents. I mean, I just don't quite get the disconnects that are happening.

Mr. YERGIN. I was going to say, so far it has been, to use a Alan Greenspan term, a conundrum, that we have had these price increases. It has caused a lot of pain for a lot of families. Yet overall, at least so far, it has caused pain for airlines, other industries, the delivery business, and yet we are looking at strong GDP. The IMF is predicting 4.8 percent global economic growth this year. Now, maybe it is because we could take \$50 a barrel in stride because we are more energy efficient, oil has less leverage over our economy, central bankers are smarter, a whole host of things.

Mr. SHAYS. I don't understand your point, oil has less—

Mr. YERGIN. Leverage. In other words, we only use half as much oil for every unit of GDP as we did in the 1970's.

Mr. SHAYS. Right, OK.

Mr. YERGIN. So that means we have a whole big part of our economy that didn't exist in the 1970's, but we still have to see whether \$70, where we are now, whether it has a more negative impact, but it does go to the overall point that \$50 was taken into stride quite surprisingly, more so than people who had been around the busi-

ness, in all parts of the oil business around the economy for a long time would have thought.

Mr. GOLDWYN. Europeans are paying \$5, Japanese are paying \$5 a gallon. Their economies aren't as strong as ours, but life goes on.

Mr. SMITH. My wife is Norwegian and she says it is fine to pay \$7 a gallon in Norway, and she can't understand why America is complaining.

The only question I would have—and I am not an energy expert really—is the question of why would countries like Russia, Venezuela and other producers, Indonesia, why should they want to produce more energy at \$70 a barrel? They can get the existing high prices without increasing production.

Mr. SHAYS. You say they can get the existing income, not high price.

Mr. SMITH. Existing income, that is right.

Mr. SHAYS. It is kind of like I couldn't get any high school kids to work at my house when I was renovating it, and finally, my daughter convinced four guys to come. This was about 8 years ago, and I said I would pay them \$12. When they came I said, to want to keep them all day, I said, "I will give you \$20." And in the middle of the day they left. They said they had earned all they needed. [Laughter.]

I got the exact opposite result.

Mr. YERGIN. I think you got it, Mr. Shays. That is it. In fact, it is when prices are lower, it is when countries worry about revenue, worry about investment, want Western companies, United States and other companies to come in and invest and increase capacity. When prices are high, they are looking at the dollar per barrel rather than the number of barrels, and they are doing fine. Russia has \$200 billion of reserves. It is in a very different position than it was in 1998, and in fact, cutting production a little bit, letting it slide, seems to drive the price up, they make more money, just like those kids.

Mr. SHAYS. Just elaborate—not in any detail—the economic versus the national security issue. You say national security we are vulnerable, economically we are not. And that is because?

Mr. GOLDWYN. That was my line.

Mr. SHAYS. Do the rest of you agree? That sounds good.

Mr. GOLDWYN. Economically we are not because we can absorb. We have proved that we can actually absorb these price increases reasonably well without a major sacrifice in GDP because we have the financial resources to help the poor if they go higher, but let the Hummer drivers basically not be subsidized at the same time. We have tools that can ameliorate some of the price effects of an oil shock, such as using the SPR and taking some of the bite out of it. But we don't have an answer for reducing the national security vulnerability. We don't have a way to move Russia. We don't have a way to move France. We don't have a way to move Germany on some of these national security issues, or China while they are so dependent.

Mr. SHAYS. Is the demand curve basically a straight line, or does it kind of curl, or what does it look like?

Mr. YERGIN. Well, you look at China, in 2004 Chinese oil demand grew by 16 percent, almost a million barrels a day. No country's

demand had ever grown by that much, except the United States coming out of recession——

Mr. SHAYS. You don't mean a million barrels a day?

Mr. YERGIN. Yes, I mean a million barrels a day.

Mr. SHAYS. One year it was——

Mr. YERGIN. From 1 year to the next it grew by a million barrels a day.

Mr. SHAYS. From 1 year.

Mr. YERGIN. From 1 year. The next year their demand—that year demand grew 16 percent. The next year Chinese demand grew by 2 percent, and so I think with these prices, the indications are that we are seeing that demand is responding to price to some degree around the world.

Overall, as you all observed in the first panel, when you look out at Chinese per capita income being 10,000 or 12,000, you look at India and others, you certainly see that the world will need 30 percent or 50 percent more energy. 25 years from now it will probably use a lot more energy than it does today, but it will not necessarily move in a straight line.

Mr. SHAYS. When I talk to constituents I say the United States has less than 3 percent of the world's oil reserves. Then I say we thought at one time Saudi Arabia had 25 percent, and Kuwait 10 or 9, and Iraq 10, in those ranges. But then I look at production capability, and we produced more in 2002 than anyone else. And then in 2004, Saudi Arabia produced more. What am I to infer from that? I mean it strikes me that if out of 2.7 percent of the world's oil reserve we produce more, we mine more, why can't Iraq or whatever just——

Mr. GOLDWYN. OPEC for one. Non-OPEC countries tend to produce the maximum that they can, and the remainder of the world's demand for oil is the call on OPEC. They either supply all of it, some, at some level, depending on the price level.

Mr. SHAYS. But does OPEC also restrict their future potential for capacity? In other words, Saudi Arabia has the capacity, at one time had the capacity to kind of rein it in or go back and forth. But I guess what I am struck with is why wouldn't a company want to—especially the short-term mentality, just want to produce as much as you could? I realize the argument, they get more money now so they have their need. But I look at a country and think, why don't they do what we do?

Mr. YERGIN. I think what you see in Russia is the government takes almost all the revenues above \$25 a barrel in terms of tax, so a company operated in Russia really is only looking at up to \$25. Therefore, we can see the investment numbers going down in Russia, and in the first half of this decade, as much as China grew in demand, Russia grew in output, but now that growth is really slowed down because the incentives aren't there.

You are right. For some countries, maybe particularly who cannot influence the market as much, their game ought to be, from their own point of view, produce every barrel that you can, but you look at Iraq, and there was the talk before the war that it would produce 6 million barrels a day. Now it is well below what it even produced before the war, and it is going to take a long time to recover to get up to that.

Mr. SHAYS. I have more questions I want to ask, but, Darrell, why don't you take some questions.

Mr. ISSA. Thank you. I think I will just try to summarize, and then hopefully get a universal agreement. I think we have some consensus, although not everyone in the administration is able to say yes in those terms, but first of all, that we are vulnerable to oil producers, and they have leverage on the United States. Even if technically we can make up for losses out of the strategic reserves, we in fact are vulnerable, and the producers in the world have leverage. Is that a fair universal statement?

Mr. YERGIN. If you take Russia, for instance, it is others—the Europeans are the ones who are now really worried about their dependence on Russian gas. I mean I think if you see us as part of a global energy market, as opposed to their ability to impact us the right way—

Mr. ISSA. And I do. Obviously, if Kazakhstan remains somewhat locked, as it is a landlocked country, it is only going to have influence to the extent that a pipeline goes to a particular place. I think it is fair to say that Canada, unless other produce a lot more LNG, to a great extent is a major influence to us in natural gas. That's just the nature of the transportation lines. But it is fair to say, both in oil and natural gas, that we have reached that point where supply is so close to demand and demand is growing at the present time every bit as fast or faster than the demand is growing, every bit as fast or faster than supply has historically, that in fact, it is a supplier's market.

Mr. GOLDWYN. Mr. Chairman, I am sorry, I couldn't agree with that statement the way you have put it for two reasons, and I think one is, taking gas, for example. I don't think actually we are in a situation where any single gas producer other than maybe Trinidad and Tobago at this point—or Canada—could have a significant impact on—

Mr. ISSA. No. I am talking globally. Everyone has their sources. But at the present time, leaving LNG out, the United States, for example, has a net deficit in natural gas forecasts, and the prices have been rising every bit as fast as oil has.

Mr. YERGIN. I think what we have seen with natural gas is it was rising, and if we had a cold winter, we would have had a very difficult situation. Now we see the difference between a market that is primarily a market, North American gas, and the prices are down in a market that is dominated where geopolitics are so important, and the prices are up. But I think you summarized it when you said today it is a supplier's market.

Mr. ISSA. Clearly, if we are to get in the short and long run away from \$3 gasoline or higher, we are to get away from shortages that could occur if any significant supplier becomes unable to deliver to the world market. We are going to have to—and this is the summary that I am hoping I can get all of the elements—we are going to have to look at alternatives which include greater use of nuclear power, greater use of clean coal—and I emphasize clean coal—a continued investment in ethanol and other renewable resources; better use of emerging technologies in the way of renewables such as wind and solar, and in the case of our transportation industry; and we are going to have to look at either a mandated or an

incentivized increase in CAFE standards. Would you say as a panel that all of those must be explored or we will continue to be more or less at the mercy of suppliers?

Mr. GOLDWYN. I would expand that list considerably. I think most of those are important elements for electricity. Only a few of those are important elements for oil, and that list for oil is not sufficient actually to make an impact, but you need to do all of those things. So I would say all those things are important for—

Mr. ISSA. I concentrated on the fact that in the neighborhood of 7 million barrels a day goes to non-transportation, and quite a bit of it to home heating, which obviously, we know we can heat homes with electricity.

Mr. GOLDWYN. All those things will be important elements of an energy security policy I would say.

Mr. ISSA. Ambassador Smith.

Mr. SMITH. I agree with that, and I agree with the list, but there are some political things which do affect the price. Monopoly practices in the energy industry, not everybody is necessarily talking about the U.S. energy industry, but I look at the Russian energy industry, I look at the European energy industry, there are companies and countries in Europe which resist in fact putting in inter-connectors between countries because they don't want the domestic competition. I think these are the kinds of things which do influence the market.

The fact that Russia has the pipelines monopolies and refuses to sign the Energy Charter, particularly the transport section of the Energy Charter, that influences the price of energy in Europe, which influences the price of energy worldwide.

There are a lot of issues like that. By locking up and preventing direct pipeline control from Kazakhstan to Europe, through Russia or through other countries, and fighting it through alternative routes effects the price of natural gas, and possibly oil in the long run.

Now, those are maybe marginal, but I think they are important additions that I would put to this list.

Mr. YERGIN. Can I just add?

Mr. ISSA. Yes, Mr. Yergin.

Mr. YERGIN. I think that is a very reasonable broad energy list. You remember that book called "The End of History?" There is a sort of view out there of the end of technology, and I don't see any reason why technology is over, and in fact, I think we are seeing an enormous bubbling of technology along the energy spectrum.

I would add to that promoting an open investment framework to the degree we can with countries around the world is important. The only other thing I would add to that is respecting the flexibility of markets, which was a great lesson of Katrina. I think that we need diversification of sources, and that is what you are talking about.

Mr. ISSA. Thank you.

And with that, Mr. Chairman, if you will finish your questioning and close.

Mr. SHAYS. Thank you. I will be happy to.

As you were talking with Darrell, I was just wondering about this issue. The implication is if you can buildup reserves, why

would a country use its energy as a weapon, when in fact it would hurt itself? What you have really made an argument for, whether you intended to or not, is that when the price is so high they are getting the revenue and building reserves, is there a point where they can buildup so many reserves that they don't care what happens to the market for a while? And therefore, is there an incentive for them to truly use energy to change public policy?

Mr. YERGIN. I think David Goldwyn sketched out Latin America, it is not directly against us, but I saw today President Chavez said the North American empire is a paper tiger, and that he is using his energy prowess to pursue his Bolivarian revolution. So I think when prices are a certain level, and the people around you say, "Oh, those prices are going to remain high forever," sir, you tend to believe it, and then you act on that.

Mr. SHAYS. But I wasn't even saying that the prices would remain high forever. What I was talking about was the fact that basically you all have made an argument—or at least you didn't disagree with each other—that contrary to what I thought—more dollars, you know, let's really exploit our oil—you are saying, heck, they can work a half day and make as much as they made in a full day, so let's just relax.

Mr. YERGIN. But then it runs out, and there is a timeframe, so you have to sort of think out 5 years. Mr. Gorbachev and Mr. Yeltsin's bad luck with oil prices has been Mr. Putin's really good luck for oil prices and he is going to be able to ride on that current of prices through the end of his term because he will have built up the reserves.

Mr. SHAYS. Right. And what strikes me is he can buildup tremendous reserves and not sweat what happens to the marketplace.

Mr. YERGIN. At least for a few years, but it catches up. A question is when will it catch up? I mean to hear President Chavez, he feels he will have these high cards forever.

Mr. GOLDWYN. You talk about reserves, but there is also production as a calculation.

Mr. YERGIN. You mean financial reserves, don't you?

Mr. SHAYS. Yes, that is right. I mean financial reserves. You have built up such a body of wealth that you can absorb. I view oil reserves as just money in the bank ready to be utilized.

Mr. GOLDWYN. Well, they are not, or not quickly, is the problem. That is why when you are talking about oil reserves and production, countries and OPEC definitely calculate. There is a level where more production means lower prices and less revenue, and so restraining production makes a lot of sense.

Mr. SHAYS. Right. I understand that.

Mr. GOLDWYN. And having a reserve—

Mr. SHAYS. But we are not in that market.

Mr. GOLDWYN. Sorry?

Mr. SHAYS. We are not in that market.

Mr. YERGIN. OPEC basically isn't functioning because everybody is producing flat out.

Mr. SHAYS. That is my basic assumption, that we are flat out, so we are at the edge. That is why I wanted to know what the demand curve looked like.

Mr. YERGIN. So it is a question of whether you are flat out now with everything you can sell, but you don't worry as much about investing for the future as you might have if you thought prices were going to be lower sometime.

Mr. SHAYS. Mr. Smith, your expertise is extensive. I would think that what Russia did with Ukraine was send a very chilling message to the entire world. But tell me this, did Ukraine just basically make a bad deal or did they make the best deal they can make?

Mr. SMITH. That is a hard one to decide, but if I had to come down on it, I would say they made a very bad deal.

Mr. SHAYS. They panicked?

Mr. SMITH. They made a bad deal.

Mr. SHAYS. No, but did they panic?

Mr. SMITH. There are a lot of explanations. There is a tremendous lack of transparency of how that deal was put together. There is a lack of transparency on the company that actually was named—Ros-UkrEnergo, which was named to be the monopoly supplier of gas to Ukraine. In the long run, if that deal is executed, Russia will accomplish what the basic purpose was. That was is to get control of the Ukraine's gas pipeline system, which is the major pipeline which takes gas from Russia to Europe. This has been a pattern that Russia has engaged in over the last several years, of getting control of these pipelines, often by pricing the energy going into that pipeline at a price that they know in the long run the country can't pay, so they accumulate enormous debts. Then in the end, Russia says, "OK, we understand you cannot pay the debt, so we'll take it in kind, and the kind will be your energy facilities and your pipeline system."

That is exactly what they are doing right now. They are putting pressure on Belarus to turn over their pipeline system. They have just gained control of the pipeline system in Moldova. They have gotten the pipeline system in Armenia.

Mr. SHAYS. This is what I don't understand. I intuitively think a pipeline goes from Russia, through a country, and it ultimately goes to Europe. So I would think Ukraine would have something over Russia.

Mr. SMITH. That is correct, and that is why Russia wants to stop that, and to prevent Ukraine from having that clout. They want to prevent that by controlling the pipeline system.

Mr. SHAYS. But wanting to doesn't tell me how you logically can do it.

Mr. SMITH. I am sorry?

Mr. SHAYS. Wanting to do it doesn't tell me how you can do it. Is it because Ukraine needs the energy that Russia is giving them?

Mr. SMITH. Ukraine needs the energy. The energy has been priced at a higher level than the Ukrainians can pay it. They have a very inefficient national energy company, a company that runs into debt month after month, and yet the head of it just bought a \$200,000 Mercedes. I think all of this is that they are accumulating more and more debt to Gazprom, and in the end Gazprom will say, "We want the pipeline system."

Just right now Russia controls three-quarters of the oil refining capacity of Ukraine. If the present system was implemented, in-

cluding all these protocols that were part of the January 4th agreement, Gazprom will have control over the internal market in Ukraine, and probably within the next year, end up in control of a pipeline system.

Mr. SHAYS. How soon will we see some excess supply in the market? When do we think we will see that?

Mr. YERGIN. It is hard to separate it from the politics because it goes to the question what is the picture of how things will look with Iran in a year, a year and a half. If you look at it primarily from an economic point of view, we would expect to see next year, if there are not more disruptions, the spare capacity number, which is that crucial number where the action is growing to maybe about 2½ million barrels a day. When we do our numbers on a field-by-field basis we see a buildup of supply that is quite substantial coming down the road, but it takes time for that to unfold.

On the other half of the question is, what do these prices do to demand? If it is just a pure market or primarily a market, then I think this picture would improve, but we are in a very difficult and vulnerable straits right now.

Mr. SHAYS. Mr. Smith.

Mr. GOLDWYN. I would be more pessimistic. I would say it might be 5 years at least before we see excess capacity more than 2½ million barrels a day, because I foresee that the instability in Latin America and the slowness in production will continue. When it picks up it is still going to be 5 to 7 years before we see the results. I see basically the situation in Nigeria in particular, and in other places, also deteriorating. I don't see signs of greater stability. I see signs of more supply interruptions. This piece in Iraq would probably be the greatest big bump in global oil supply, but I don't see that happening, frankly, for the next 3 years or so either. In places like Libya, which has just opened, where you can have enhanced oil recovery and you can get near-term real increases in supply, I don't see a great leap forward there producing oil for at least 3 years. So all those are pretty negative on the supply side.

On the demand side, absent a major act of terrorism collapsing demand someplace, I see the growth of China, the growth of India, progress that we want in developing Asia, and that locking in demand pretty high, and the technology factor which might change the way that we are consuming not really being able to kick in even if we changed our policies in the right way also for 3 to 5 years. So I don't see anywhere in the equation, absent a disaster, where we get excess capacity for—

Mr. YERGIN. Can I round it out? Following from David Goldwyn's comments, certainly many of the trends in the Middle East are adverse, and those larger trends will affect what happens. I have given what we would use as our base scenario, but one thing maybe to counter a little bit, is what is happening to cost in developing new oil and gas fields. Costs are up 68 percent since 2000. So there are shortages of people and equipment too that if what I laid out doesn't happen—that will be also one of the factors that would retard it.

Mr. SHAYS. But this isn't like where I lived in Stamford, CT where they determined they needed a hotel, and three people built a hotel, three different companies so you had three hotels, and the

market just crashed. The same thing with the paper industry, they all built these large mills, and they only needed one, but like three did it or four or five, and the market crashed. You are not going to see that kind of issue in——

Mr. YERGIN. I think that there is little expectation that at least in the next period of time that you could see another period of \$10 oil like we had in 1986 and 1998, not so long ago. And there is kind of, if you look at people's investment plans and what numbers they are using, they seem to assume that oil, that the floor now would be maybe around \$35 a barrel, rather than \$20 a barrel, which was a planning assumption a couple of years ago. If there were enough people and enough equipment and enough open doors around the world, you probably would get the hotel phenomenon, but there are enough blockages in the way that maybe we will end up with 1½ hotels.

Mr. SHAYS. I turned off to the first panel because I just felt there wasn't an honest dialog. I felt like there was a statement of the position of an administration, and what I feel like is that we are walking on thin ice, that you could fall through at any time. It wouldn't take a significant disruption to cause a huge impact on our energy, higher prices and shortages. Is there anything that should dissuade me from feeling that way? I would like all three of you to answer. Should I have sympathy for the response to the first panel?

Mr. SMITH. This really is beyond my competence, but as a diplomat, I have never stopped that from making a comment.

Mr. SHAYS. Why don't we just say that you have a tremendous amount of knowledge, but just not a lot of expertise. [Laughter.]

Mr. SMITH. OK. I don't really know the answer to the question, but how do we create incentives to increase production? I don't see any incentives to increase production or allow foreign energy companies into Russia, into Venezuela, into Bolivia, Indonesian markets, until the prices goes down. How do we get the price down? It is going to come down only when we create certain realities in our own countries which will bring the price down. With state-owned companies increasingly in control, the private energy sector is a smaller and smaller sector of the whole exploration and development area.

Mr. SHAYS. I just have to tell you how I would react to this. I almost feel like someone is playing a game with me, because it is like my saying the greater the demand, the lower the price. It seems like a contradiction in terms to me, because intuitively, I would say OK, you get more money, you work to increase supply. I mean that is basically what I am hearing.

And you are saying to me in essence, that the more money they have, countries aren't inviting folks who could really increase capacity, and they are going to bring people to come and increase capacity when they get lesser price.

It is logical, but it is weird.

Mr. YERGIN. Yes. It is that they feel they don't need foreign investment, they feel they don't need foreign technology.

Mr. SHAYS. They got enough money.

Mr. YERGIN. Yes, they got enough money, and they are fine, thank you. And the future will be like the present.

I think in answer to your question I would say that a market that is this tight with the kind of geopolitical risks that are staring us in the face, is a crisis-prone market, and how big the crisis will be, whether it occurs, we don't know. That is why it really behooves us to ask what are the mechanisms we have in the short term and thereafter to cushion it and deal with it, and perhaps to get ourselves through this difficult period.

Mr. SHAYS. Do you all agree with that answer?

Mr. SMITH. Yes.

Mr. GOLDWYN. Yes.

Mr. SHAYS. Well, I will tell you how this politician thinks when I hear this. I think September 11th. I think Enron and WorldCom. I think Katrina. I think Iraq. And I say, no, thank you, I don't want any more crises. So it would strike me that we would be working our butts off to try to minimize the possibility of a crisis, and if nothing else, be able to demonstrate politically that we at least tried, I am not seeing a Marshall Plan, I am not seeing a Manhattan Project, and it just strikes me that you are going to have to—

Mr. GOLDWYN. If I could just offer this. People say energy policy is like the movie "Groundhog Day", you keep waking up and having the same nightmare over and over again. It is because we tend to characterize the crisis, as you put it, in terms of price. The fact is, in terms of price, we are not actually in a crisis, and we could absorb a little bit more. Where we are in a crisis is in national security, and we are heading for more of a crisis in national security. You need to frame the debate in terms of national security, not in terms of prices and shortages, because I think that is where U.S. vulnerability is greatest, and that is where the response needs to be.

Mr. SHAYS. I am going to let you go in just a second here, but what I don't fully grasp is how you define a national security crisis.

Mr. GOLDWYN. A national security crisis is Iran getting a nuclear weapon because we cannot persuade any of our allies that they need that security more than they need their oil.

Mr. SHAYS. Because they have oil.

Mr. GOLDWYN. Right.

Mr. SHAYS. But it is not a security crisis because of lack of oil?

Mr. GOLDWYN. No.

Mr. SMITH. I agree with that, Mr. Chairman. It is not the price of oil. In fact, your original suggestion to your constituents of putting in the 50-cent additional energy tax or gasoline tax on, I think is a good idea. The question is, how do you sell it in America because an additional, say, \$1 a gallon, would reduce the demand in the United States, and I think that has national security implications for us in the positive sense.

Mr. SHAYS. The way I would have sold it if I were President of the United States, I would have said, after September 11th we are never going to be totally independent of foreign sources of energy, but we are going to be a hell of a lot less dependent. Therefore, we are going to not sweat bullets with what happens in the Middle East or anywhere else, because they don't have a noose on us.

When I travel in the Middle East, I feel like they feel like they have the upper hand. That is kind of how I feel.

Mr. YERGIN. I think there is a price where the economic effects hit us hard, and perhaps cause panic in financial markets. If you had a disruption, things could unfold in ways that we don't expect. So I think in a sense it is looking at it in both ways. Part of the reason the whole energy security machinery was set up in the 1970's was really to protect GDP. It goes back to what I tried to emphasize, the importance of seeing this in terms of our overall foreign relations. And I think part of the message of your remarks, Mr. Chairman, is the importance of connecting the dots, and the dots bringing these things together.

I think I have seen enough of these cycles—I ran a task force in the Department of Energy in the 1990's on energy R&D—we go up and down and up and down, and you know, there is a limit. It is not like you could just throw billions and billions and billions of dollars and get results, but you do need to put billions of dollars into it on a consistent basis and stick with it. The two biggest things we did in the 1970's were that we saved 2 million barrels a day with fuel efficiency standards, and we gained 2 million barrels a day with the Alaska pipeline. It isn't an either/or between supply and demand. They are both important. In the short term, there is probably a lot more that can be accomplished in demand.

Mr. SHAYS. If a President talked about energy independence and he said, you are all going to get something you want and you are going to all have to give on something you don't want, we will ultimately get what we all want, a really substantial policy that moves us in a way that we are less dependent. The environmental movement, for example, doesn't particularly want nuclear power plants in the United States. I think you would see that. If CAFE standards go up, I think a President can put together a package like that.

I have just one last issue, and that is whether it is conceivable that a country can lock up energy supply so that they have a guaranteed source of energy ad infinitum because they have locked into long-term contracts?

Mr. YERGIN. Of course, the LNG industry is really based upon 25, 30 year contracts, so gas goes from a field in Indonesia to a Japanese utility. There is a whole chain of investment that supports it.

Mr. SHAYS. But not with oil.

Mr. YERGIN. Not with oil. I come back to the Japanese and others thought that they could buy supply positions—

Mr. SHAYS. I just was wondering if you could corner the silver market, is kind of what I am asking.

Mr. YERGIN. Yes. I think that if the oil market is too big and too diverse and too many players, that you are not going to be able to have somebody preempt us. As I say, the way I turn it around is I would rather see the Chinese investing more money rather than less.

Mr. SHAYS. Anything that you all think we should just put on the record before we go? Is there any question that we should have asked that we didn't that we just need to put on the record?

[No response.]

Mr. SHAYS. Thank you all for your patience. Thank you.

This hearing is adjourned.

[Whereupon, at 5:25 p.m., the subcommittee was adjourned.]
[The prepared statement of Hon. Diane E. Watson and additional
information submitted for the hearing record follow:]

**Opening Statement
Congresswoman Diane E. Watson**

**Joint Hearing
Subcommittee on Energy and Natural Resources
and the
Subcommittee on National Security, emerging Threats, and
International Relations**

**“Energy as a Weapon: Implications for U.S. Policy”
May 16, 2006**

Mr. Chairman, thank you for convening today’s hearing. I commend your timeliness on this issue pertaining to energy policy. This hearing should highlight the geopolitical link between world energy needs and America’s national security policy.

Energy is essential to the American lifestyle. The United States accounts for 25 percent of the world’s energy demand. Currently, world demand for energy is rising dramatically. Rapidly approaching American demand, China is the leader of this energy hungry pack.

On the production side of the issue, the generation and delivery of energy is a serious challenge. Procurement of energy is a challenge of engineering, a challenge of planning, and a challenge that evokes the most serious aspects of our foreign policy. Moreover, energy is a key factor in the environmental challenges we face in modern America and the world. Reliance on fossil fuels causes serious air and water pollution, and it is the source of constant pressure to exploit our last precious wild lands. As the petroleum demand intensifies, Americans will remain exposed to the environmental costs and the harmful public health impacts associated with dependence on oil.

Because we do not control 100% of the production of energy that we consume, questionable foreign policy decisions have been made. In the future, more and more geopolitical policy will be based on acquisition, retention, or defending energy resources. The exponential

technological advances of the past few decades have connected the globe. The finite aspect of coal and petroleum based products forces governments to plan and strategize for control of known sources.

On the demand side of the issue, energy markets are increasingly global, and international competition for energy resources has long contributed to international armed conflicts. More specifically, America's dependence of oil makes us economically vulnerable to terrorist attacks on oil supplies, forces us to transfer vast funds to nations that may be hostile to the United States, and requires huge ongoing military expenditures to protect our supplies.

In addition to oil dependence, Global warming is a phenomena that is occurring today, and the consensus of the worldwide scientific community is that it will accelerate during the 21st Century. Energy policies related to abrupt climate change also raise national security concerns.

One such concern is the prospect of international destabilization caused by the consequences of climate change, such as the loss of land area or loss of water resources. A research paper prepared for the Pentagon in 2003 addressed this scientifically significant possibility. Gradual global warming could lead to harsher winter weather conditions, sharply reduced soil moisture, and more intense winds in certain regions that currently provide a significant fraction of the world's food production. Furthermore, the United States position on climate change has proved diplomatically costly, as it has strained relations with traditional allies over the past few years.

Mr. Chairman, we can build a bipartisan consensus on energy policy and steer our country through the challenges we face.

Thank you for convening today's hearing.



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**Testimony of Dr. Peter H. Gleick to the
United States Congress
Committee on Government Reform**

**Subcommittee on National Security, Emerging Threats, and International Relations
Hearing on Energy as a Weapon: Implications for U.S. Security**

“The Implications of Global Climatic Changes for International Security”

May 16, 2006

[Note: Dr. Peter Gleick is President of the Pacific Institute, Oakland, California; he is a member of the U.S. National Academy of Sciences; he was named a MacArthur Fellow in 2003.]

Over the last few decades, there has been growing concern over the international security implications of large-scale environmental problems, including those associated with the production and use of energy resources. Recently, this attention has focused on the possibility of major climatic changes caused by growing atmospheric concentrations of carbon dioxide and other trace gases that result, primarily from our combustion of fossil fuels. Given the extent and severity of the likely climatic changes, it is increasingly urgent that we begin to ask how climate changes will affect international relationships, economics, access to resources, and national security.

It is widely acknowledged that the dependence of the U.S. on imported energy resources can lead to economic pressures and tensions or as triggers to conflict when other pressures and tensions exist between nations. Less appreciated is the extent to which the environmental impacts of energy use can lead to international security threats, especially when those impacts are as severe and wide-ranging as climate change. My testimony today discusses the most likely paths for such effects and what responses might be appropriate to minimize the adverse consequences for international stability and tensions.

Global climate change is a real and serious problem. Impacts are already evident and are worsening rapidly in many parts of the world and the United States. It is vital to identify our greatest vulnerabilities to climatic stresses and the areas where those stresses will most affect national and international security, behavior, and policy.

Five critical areas stand out as important examples of national vulnerabilities with security implications: agricultural productivity, the availability and quality of freshwater resources, access to strategic minerals, rising sea level, and the deterioration of political relationships with other countries that result from disagreements about international climate policy.



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Agricultural productivity fluctuates with the weather and the level of international trade is large. As climate change improves agricultural production in some regions and worsens it in others, there will be significant economic shifts and dislocations, affecting trade, food independence, and economic health of farming communities and regions.

Water resources are sensitive to both floods and droughts and are limited in many regions due to natural variability or high societal demand. Conflicts over shared water resources are already on the rise (see the historical compilation of these conflicts in the Water Conflict Chronology at www.worldwater.org). As climatic changes increasingly alter rainfall and runoff patterns and water availability, the risks of some regional water disputes may grow. Particular hotspots include the Middle East, Northern Africa, and Southeast Asia.

Certain mineral resources, including oil and gas, are found in significant amounts in regions constrained by climatic conditions and the importance of these resources to particular nations and alliances warrants attention. Access to these resources may ease or worsen, altering geopolitical strengths and weaknesses. In particular, access to North Slope oil and gas resources in Alaska may worsen as warming undermines permafrost and oil and gas transportation infrastructure. New sea routes may open up on the far north.

Despite many uncertainties about details of climate impacts, not all impacts are uncertain. One of the most certain effects will be rising sea levels as the oceans warm and land ice melts. Hundreds of millions of people live in coastal regions within a few feet of sea level and they are already vulnerable to severe storms and high tides. While countries like the United States with long coastlines will experience rising damages and deaths from coastal storms, we are likely to spend financial resources to defend coastal property or to relocate vulnerable populations. Other parts of the world will not be in the same position, and large numbers of refugees may be created in regions like Bangladesh, India, and many island nations. Among the greatest concern of experts is that massive dislocations of populations can lead to regional political instability that spills over into the international arena.

Finally, there are growing international political disagreements over policies to address climatic changes and greenhouse gas emissions. Any international agreement to prevent major climatic changes will be hard to reach, as we already see. But climate policies are also complicated by the desire of certain actors (alliances, nations, sub-national groups, corporations) to capitalize on perceived regional advantages. Those actors who believe – rightly or wrongly – that the science is inadequate for policy, or they will benefit from a warmer earth, or they will bear a disproportionate share of the costs of reducing



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emissions will have no direct incentive to cooperate in any international agreement to prevent climatic change. We've already seen evidence of this in the actions of the U.S. government as well as certain U.S. corporations dependent on fossil fuels production. These growing international disagreements can lead to worsening relations with long-time allies over environmental policies as well as new disputes with developing countries over how to address both the causes and effects of climate change. These disagreements spill over into economic policy, trade agreements, and security arrangements.

It would be a serious mistake to wait to address these concerns. More research on the impacts of climate change is certainly needed, and underway at both the U.S. and international levels. But the longer that we wait to address greenhouse gas emissions, the worse and more rapid will be the changes.

Agricultural Productivity and Trade

Threats to the basic food supplies of a country are already cause for frictions and tensions between nations. Possible mechanisms for such threats include trade embargoes or other forms of political manipulation of access to food, environmental degradation such as loss of soil fertility, or competition among conflicting land uses. Because regional scarcity is a fundamental condition for a good to become a political tool, the disparity in food needs and food resources between the developing and the developed world has long hinted at the possibility of future conflict over access to food resources.

Food availability depends on a complex array of factors, including patterns of production, purchasing ability, and the operation of food distribution systems. The vulnerability of political behavior to the availability and quality of agricultural resources was demonstrated long ago by internal conflicts and violence over food shortages throughout the Sahel in the 1970s, in Sudan in 1981 and 1985, in Poland in 1980, in Tunisia in 1983 and 1984, and in Morocco in 1984. These internal events often serve to increase external tensions as well, as was demonstrated in the conflicts involving the U.S. military in Somalia.

Even today, some countries are acutely vulnerable to natural climatic variability that may cripple their own food production or substantially reduce the supply and raise the price of foodstuffs on the world market. Under conditions of changing climate and growing population, this situation may grow more precarious. As far back as the 1980s, observers noted the sensitivity of some countries to national food production. One analyst noted about the Soviet Union:

"The need to turn to international markets for grain became a regular humiliation and a drain of scarce foreign currency. In the eyes of Soviet leaders, problems with agricultural



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productivity threatened domestic stability, national security, and economic growth."¹

This situation is even truer today for China. As temperatures increase, agricultural production could expand into northern regions of the United States, the Soviet Union, China, and Canada if soil conditions, water availability, and other factors permit. But output in regions that are now productive, such as the northern China, the Great Plains of the United States, the Ukraine, and Kazakhstan, could be reduced by higher temperatures and changes in water availability. Analysis of the net effect (both regionally and globally) of climatic changes on food production will be further complicated by the size of food stocks and reserves, investment and planting patterns, international prices, and the character of trading agreements.

Water and Security

International political frictions and tensions have arisen over the control of, access to, or the quality of freshwater resources². Even in the absence of climatic changes, pressures on existing water resources are growing due to increases in population, industrial water demand, and development in semi-arid and arid regions. Where water resources are shared, as in international river basins or bodies of water bordering more than one country, the possibility of friction and conflicting demands exists. The nature of such frictions varies from region to region – from disputes over water quality in humid regions to competition for scarce resources in arid and semi-arid regions.

Nearly half the land area on the planet is in an international river basin and over 260 major rivers are shared by two or more nations.³ Regions with a history of international tensions or competition over water resources include the Jordan and Euphrates Rivers in the Middle East, the Nile, Zambezi, and Niger Rivers in Africa, the Ganges in Asia, the Colorado and Rio Grande Rivers in North America. As water demands increase, the probability of conflict over remaining water resources will also increase.

Future climatic changes can reduce or exacerbate these water-related tensions. Among the critical concerns are changes in (1) water availability from altered precipitation patterns or higher evaporative losses due to higher temperatures, (2) the seasonality of precipitation and runoff, (3) flooding or drought frequencies, and (4) the demand for and the supply of irrigation water for agriculture.

¹ Gustafson, T. 1981. *Reform in Soviet Politics: Lessons of Recent Policies on Land and Water*. (Cambridge University Press, Cambridge, England.) 218 pp.

² Gleick, P.H. 1998. Conflict and Cooperation over Fresh Water. In P.H. Gleick *The World's Water 1998-1999*. Island Press, Washington, D.C., pp.105-135.

³ Wolf, A.T. J.A. Natharius, J.J. Danielson, B.S. Ward, J. Pender. 1999. "International River Basins of the World." *International Journal of Water Resources Development*, Vol. 15, No. 4 (December).



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Details about water allocation and use in the Colorado River and the Nile River – both international rivers – can provide insights into how water conflicts arise and what appropriate mechanisms for resolving such frictions might look like. The Colorado River flows through seven states of the United States and into Mexico. It is vital for agriculture in both countries. As a result, the Colorado is extensively used – so extensively that Mexico would receive almost no flow were it not for an international treaty signed in 1944 that guarantees a fixed volume of water to Mexico annually. This treaty was negotiated after nearly 50 years of contention and disagreement over the sharing of the Colorado River.

Unfortunately, the treaty provisions for allocating shortages during a drought are ambiguous and no provisions in the treaty cover the possibility of a climatic change that could alter the long-term availability of water in the river. These ambiguities and omissions could result in a revival of U.S. - Mexican frictions if the runoff available in the Colorado were to be reduced by climatic changes. In fact, research by the U.S. government suggests that even modest climatic changes will have serious and dramatic impacts on Colorado River flow.⁴

Similar problems face other rivers. Although the principal water users of the Nile, for example, are Egypt and the Sudan, the runoff is mostly generated by precipitation in Ethiopia and the other countries. Competition for the waters of the Nile arose in the early 1900s over growing Egyptian needs and continues to this day. Existing agreements are inadequate and fail to include all users in the region. Any climatically-induced change in water availability will further complicate the future use of the Nile, contributing to political jousting and friction. U.S. diplomatic resources must be brought to bear to address the risks that climate change may pose to key U.S. interests, allies, and resources, particularly in the context of water.

Northern Mineral Resources

Access to certain strategic minerals is already constrained in some regions by climatic conditions. In particular, the ability to extract oil and natural gas in Arctic continental and offshore regions depends on expensive and vulnerable methods and materials. Yet significant resources underlie these regions and they are a vital element in the U.S. economy, energy strategy, and world trade markets. Any change in climate that affects the ease of extracting or moving these resources will play a role in the response of

⁴ Nash, L. and P. Gleick. 1993. The Colorado River Basin and Climatic Change: The Sensitivity of Streamflow and Water Supply to Variations in Temperature and Precipitation. U.S. Environmental Protection Agency, EPA230-R-93-009, Washington, D.C. 121 pp.



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international actors to initiatives to control climatic change.

Globally, the oil and gas potential of the northern Arctic regions is very large. Despite only limited exploration, Arctic proven reserves already comprise a substantial fraction of the proved reserves of the countries of the region and the volume of "potentially recoverable" oil is several times larger. Overall, as much as 25 percent of all oil may lie in Arctic regions, and the Arctic is warming twice as fast as the rest of the globe. For example, as much as 20 percent of total U.S. proved reserves are in Arctic regions; as much as 30 to 40 percent of Russian reserves are in the far north. I note that the U.S. is currently launching an effort to more accurately map Arctic oil reserves.⁵

The technical and environmental challenges, monetary costs, and ecological and economic risks of finding and extracting Arctic energy resources are immense. Development of much of the new oil and gas potential in the Arctic will be substantially more expensive than the production of the already costly Prudhoe Bay and Western Siberian fields. The difference in capital costs of production between the Arctic Chukchi Sea and the sands of Saudi Arabia is a factor of 60.

Higher temperatures from climatic changes could reduce some of the difficulties of extracting mineral resources in the far north, but other climatic factors may worsen these difficulties. For example, as temperatures rise, partial melting of the permafrost layer is already occurring affecting construction practices and existing physical developments. Similarly, a reduction in sea-ice extent and changes in atmospheric patterns may lead to higher precipitation. This in turn may lead to higher snowfall and more difficult operating conditions.

Given the importance of northern mineral resources, climatic constraints are unlikely to prevent future development. The major question is whether or not future climatic changes will significantly increase or decrease the difficulty – and hence the expense – of that production. The goal of reducing U.S. dependence on Middle Eastern oil (and thus theoretically increasing national security) is often claimed to hinge upon the development of Alaskan/Arctic oil reserves. The uncertainties posed by future climatic changes will complicate these problems.

Coastal Dislocations, Environmental Refugees, and Security

Sea level is expected to rise between one and three feet over the next century, considerably faster than experienced over the past hundred years, with a risk that the rate could accelerate even faster if land-ice feedbacks turn out to be significant. Coastal

⁵ U.S. Arctic Survey Program of the U.S. Geological Survey.



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developments and populations are already at risk from storms, as Hurricane Katrina so clearly demonstrated last year. Yet even small increases in sea level greatly increase the risk of damages and deaths by magnifying the areas and people at risk.

In the United States and other developed countries, investments will be made to protect the most important and vulnerable infrastructure near sea level, such as ports, airports, transportation corridors, power plants, and so on. While such investments will be increasingly expensive, they will offer at least some protection. In other regions, it is likely that populations will be relocated over time as risks grow.

Far more worrisome, however, is the inability of many developing countries to protect their populations and infrastructure to the same degree, especially in regions where large numbers of people are at risk. For example, a study from Myers and Kent of Oxford University suggested that as many as 26 million people in Bangladesh, 12 million in Egypt, 73 million in China, 20 million in India, and more than 30 million elsewhere are at direct risk of displacement from rising sea level.⁶ As these environmental refugees are displaced, there is likely to be an increase in illegal cross border migrations, ethnic tensions, and civil disorder. These regional security disruptions may well spill over into the international arena, directly threatening U.S. national and regional security interests in ways we do not fully understand or appreciate. Far more attention should be given to this issue than it has received to date, including more detailed analysis by the U.S. Department of State and other appropriate agencies.

The International Politics of Climate Change, and Implications for U.S. Security Interests

The international political disagreements over policies to address climatic changes and greenhouse gas emissions are spilling over into U.S. relations with allies, trading partners, and the international community. An international agreement to prevent major climatic changes will be hard to reach, as we already see. But there is growing evidence that U.S. interests will be affected by perceptions of our willingness and ability to participate in international climate policy. The perception that the U.S. bears a disproportional responsibility for impacts and is unwilling to join multi-lateral efforts to reduce emission affects our international reputation and standing. These growing international disagreements can lead to worsening relations with long-time allies over environmental policies as well as new disputes with developing countries over how to address both the causes and effects of climate change. There is also a risk that these disagreements will spill over into economic policy, trade agreements, and security arrangements.

⁶ Myers, N. and J. Kent. 1995. Environmental Exodus: An Emergent Crisis in the Global Arena. Oxford University and the Climate Institute.



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Avoiding political polarization on the issue of climatic change depends greatly on the perceptions of the participants. If some international actors believe that they will benefit from climatic changes while others suffer, such perceptions – correct or not – will drive policy actions and decisions. The views of those with the financial and technological means at their disposal to affect the outcome or mitigate the impacts of climatic changes are especially important. Arguments for international action are complicated by individual actors taking positions dependent **not** on the global good, but on the perceived advantage or disadvantage to them of the likely change and impact. We've already seen evidence of this in the international debates, and in debates over science, where major funding of pseudoscience by oil companies and other interests opposed to policy action on climate change has introduced uncertainty into the minds of policy makers where little real uncertainty exists in the scientific community.

Conclusions

Future climatic changes caused by human activities will have widespread impacts. Some climate impacts will affect international security and the security of the United States. Among these will be changes in the quality, quantity, or ease of access to freshwater and mineral and energy resources, growing numbers of environmental refugees, and changes in the productivity of agriculture. These impacts, in turn, will alter human well-being, the quality of life, and the range of options and policy choices available to governments. In order to prevent these climatic impacts from causing international tensions and conflicts, they must be more thoroughly explored and strategies developed to either mitigate or prevent the worst effects.

The most effective ways of reducing the risks to U.S. national security from climate changes are to reduce the rate and severity of those changes by slowing emissions of greenhouse gases, and to reduce our dependence on energy sources that are both out of our direct control and that contribute to greenhouse gas emissions. Both approaches suggest that policies to reduce demand on oil and gas and to shift to non-fossil-fuel alternatives are urgently needed, as President Bush recently suggested.

Where existing political tensions may be worsened by climatic change, such as in disputes over water resources, advances are needed in both conflict resolution among states and in the development of international resource law. Such advances would be useful not only for resolving international resource controversies, but for addressing the very issue of future climatic change.

Finally, differing perceptions about the severity of global climatic changes must not be allowed to stop comprehensive international negotiations. Although there are likely to be disagreements about specific regional impacts, no region or country can expect to benefit



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from rapid climatic changes that would overwhelm the capacity of even wealthy countries to adapt. Many actions that would prevent or delay climatic change are appropriate in their own right, such as improvements in energy efficiency, a reduction of dependence on imported fossil fuels, and the development of effective international mechanisms to reduce greenhouse gas emissions. These cooperative strategies can reduce the rate of climatic change and give us time to both improve our understanding of climatic impacts and to reflect on appropriate international responses.

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